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Flavoring Essences.

These preparations are exceedingly useful for the cook's purpose. It is often desired to flavor a soup or potage without the appearance of the material from which it is derived; in such cases nothing is more fit or simple that to apply a few drops of the plant's essence, the flavor of which is required. An ingenious cook, by a just combination of these materials, will produce a new flavor much in the same way that a perfumer creates a new odor, by altering the proportions of a mixed scent, which, if properly blended, the originals from which it is prepared can with difficulty be recognised. Some of these essences are applicable for soups and made dishes, and others for confectionary. One caution alone is necessary in their use, and that is, to apply them in minute quantities only. If the thing be overdone, it becomes nauseous, and brings discredit instead of praise. The old adage, "we can have too much of a good thing," may be well applied here. The cook's palate is, however, the best guide as to the proportions to be used.

ESSENCE OF MINT, THYME, SAGE, CELERY, AND CINNAMON—Take half a pint of rectified spirits, and dissolve in it half an ounce of the essential oil of any of the above substances.

ESSENCE OF CLOVES, CASSIA, AND NUTMEG—Take half a pint of spirit to one ounce of the oils.

ESSENCE OF LEMON AND ORANGE—Take spirit half a pint, essential oil of orange or lemon three-quarters of an ounce.

ESSENCE OF ROSE, PEPPERMINT, AND ALMOND—Take spirit half a pint, oil of rose (called "otto of rose,") oil of peppermint, or of almond, one quarter of an ounce.

All these oils dissolve in rectified spirit if slightly warmed. Instead of spirits of wine the best French brandy may be used with advantage.

ESSENCE OF VANILLA—Take half a pint of spirit, or brandy, vanilla pods half an ounce; cut the vanilla very small; and let them digest for a month in a temperate place.

ESSENCE OF GINGER—Take spirit, one pint; crushed ginger, eight ounces; chillies, one-quarter of an ounce. Let the whole stand for a month; then strain, and it is fit for use.

ESSENCE OF ALLSPICE—Take spirit half a pint; essential oil of pimento, one ounce; mix, and it is ready for use.

SEPTIMUS PIESSE.

London.

To Destroy Rose Bugs.

The Buffalo *Republic* says:—When the rose bug first makes its appearance, sprinkle your bushes profusely with the pollen of the flower of the alanthus tree, or pour upon the bushes, through a watering pot, a strong decoction of the same. You will presently see hundreds of the bugs falling to the ground, there to die. The operation may be repeated once or twice a day, until they entirely disappear, which generally takes place in less than a week.

STEAM BOILER FEEDER.

Fig. 1

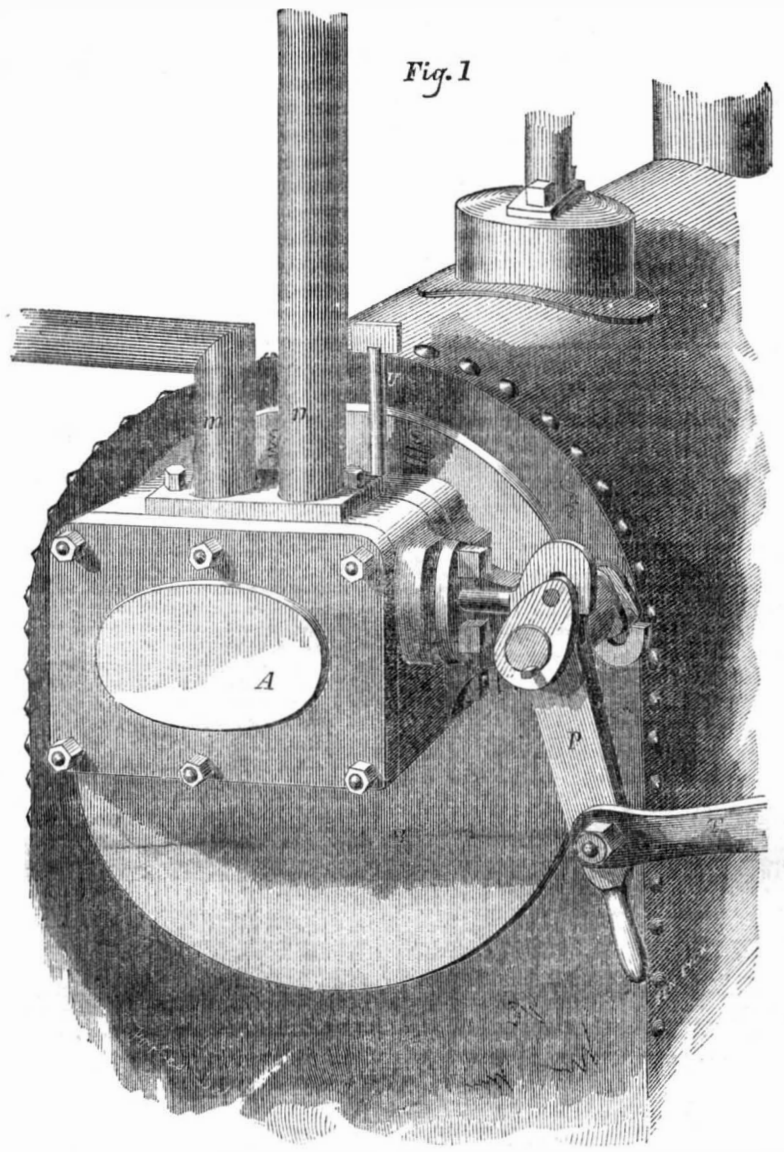
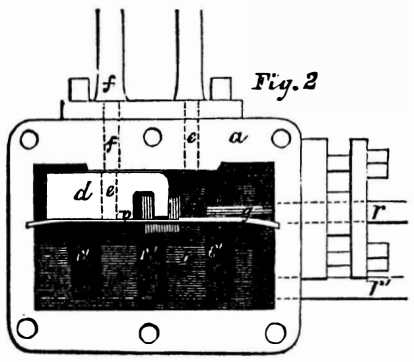


Figure 1 is a perspective view of an apparatus for supplying steam boilers with water, for which a patent was granted to Benjamin F. Bee, on the first of August last, to which he has given the title of Hydrostant. Figs. 2 and 3 are sectional views of the apparatus, showing the internal arrangements and the different positions the two valves are made to occupy, by which contrivance water is supplied to the boiler in proportion to the demand.

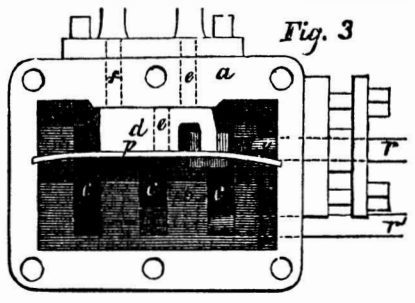
Fig. 2



A is a rectangular box, bolted upon any convenient part of the boiler, and at such hight that its center shall coincide with the point at which it is intended the water shall be sustained. This box is divided into two parts vertically by a partition, on the back of which, and next the boiler, stands the upright valve *o'*. *c c c*, fig. 3, are ports in this partition corresponding to others in the valve, which afford free communication between the chest and the boiler. *d* represents a valve lying horizontally against the upper surface of the box corresponding to the ports, *f* and *e*, which communicate with pipes, *m* and *n*, fig. 1, leading to the tank whence the water is supplied. *r* and *r'* are the valve stems respectively, which are actuated by the rocking shaft, T, and lever, P, fig. 1. It is made to vibrate about 90°, and from 4 to 6 strokes per minute, by suitable connection with any positive mover. When one of the valves is shut the other is open, and vice versa.

Having designated the principal parts we will consider their operation. Suppose the water to be at its proper hight in the boiler, and the ports, *c c c*, fig. 3, being open; its

Fig. 3



level will be continued through each section of the box, and will stand as represented at *b*. It is evident then, that the lower half of the box will contain water, and the upper half steam. If now the lever, P, be carried to the right, the ports, *c c c*, will be closed, and all communication with the boiler shut off. By continuing this motion of the lever still further, the valve, *d*, which had remained stationary, as in fig. 3, will assume the position as in fig. 2. It will be seen by this fig., that the port, *e*, commences at the valve seat, while the port, *f*, is continued through the depth of the valve. The effect of this arrangement is, that whatever steam the box contained naturally seeks *e* as its outlet, and is conveyed to the upper part of the tank by its appropriate pipe, while at the same time, water is flowing from the tank through pipe, *f*, and the box or sheet is immediately filled with water. In due time the lever, P, returns, the valve, *d*, assumes a position as in fig. 3, the ports, *e c c*, are opened, presenting the water in the box one half its hight higher than in the boiler, which, however, immediately finds its level by flowing into the boiler, being replaced by steam. By the next change of the valves, the box is again filled, then again emptied, and so on. It will be seen that, by this apparatus, the level of the water in the boiler cannot supersede a certain hight. Suppose for instance, the consumption of water to be checked, this machine being in constant operation, the water will begin to rise into the boiler, and each feed introduced will be proportionably less, until the level of the water in the boiler arrives at the upper surface of the box, where the feed will stop, because the chest or box cannot receive any more. And when the valves change for water to pass to the boiler, it cannot do so, it being already on a level. So also should the water fall in the boiler such feed will be proportionably greater, until the whole box full is discharged at each stroke, which is calculated to be ample for all emergencies.

This apparatus is especially adapted to stationary engines where a tank or heater is employed, or where the water is received at a higher level than the boiler. It does not add materially to the cost of such an engine, as it supersedes the necessity of a force pump. For all steam generators, where steam is not employed as a motive power, its adaptation is evident.

This invention is now the property of the American Steam Safety Company, and is the first of a series which they are about to introduce to the public for the accomplishment of the same, and kindred purposes.

For more information, communications addressed to Benjamin F. Bee, consulting engineer, or J. B. Barnaby, at the office of the Company, No. 335 Broadway, this city, will meet with attention.

Simple Invention Wanted.

The greatest annoyance in Southern climates is mosquitoes, and any one who would invent a fan for keeping them off at night, and allow us to dispense with mosquito nets, might realize a fortune in New Orleans alone in one summer. All that is wanted is a cheap motive power which will keep two or three broad light fans in motion for eight hours; they might be constructed for a few dollars. The nights at the South would be pleasant enough were it not for the obstruction to the air by the use of mosquito nets, and any one would pay liberally to be relieved from them. SOUTHERN.

Mobile, Ala.

[In 1832, Commodore Barron obtained a patent for moving a revolving fan by clock-work, for the very purpose described by our correspondent. We really believe that a strong clock-work machine, operated by a spring or weight, could be made at a cost not exceeding eight dollars, to rotate two fans for eight hours. It seems singular, however, that if a fan can accomplish the desirable results set forth by our correspondent, that Commodore Barron's invention should not have come into general use by this time.

The average duration of human life throughout the world is 33 years. One-quarter die previous to the age of seven years; one-half before reaching seventeen.

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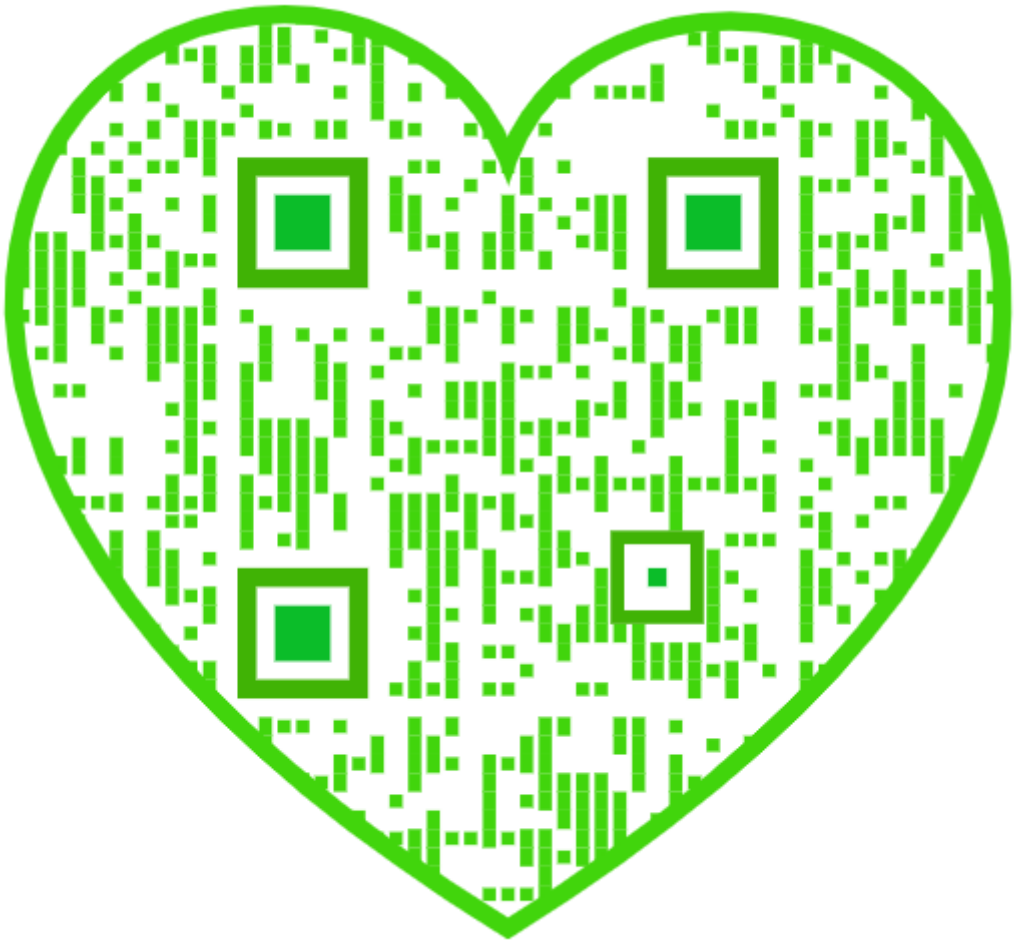

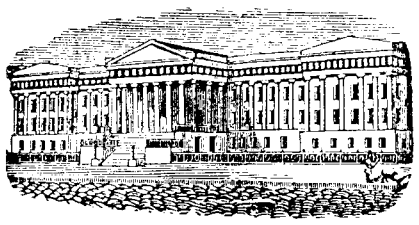

[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office,

FOR THE WEEK ENDING MAY 17, 1855.

WOODEN SADDLE TREES—G. B. Ambler, of Trumbull, Conn.: I claim providing the slot, B, in the center of the head of a wood saddle tree and the screw thread in the top strap, C', said slot serving to receive the end, C, of the gullet hook, and the screw thread serving to firmly hold the screw, substantially as and for the purposes set forth.

[By the method of securing the gullet hook embraced in this claim, and having its flat part form part of the tree itself, and its top and bottom stand even with the upper and under surfaces of the tree head, instead of having the gullet hook fastened by nut under the head, the symmetry of the front part of the saddle is improved and made lighter. The liability of the gullet hook working loose is also lessened.]

RAT TRAP—L. B. Bradley, of Watertown, Conn.: I claim the employment of a tilting or swinging plate, E, and balancing or counteracting spring, F, in combination with the ordinary spring drop or fall, substantially as and for the purpose set forth.

[The balancing spring, F, is combined with the ordinary spring drop, or fall, for the purpose of ensuring the action of the trap the moment the rat comes upon the tilting bottom, to snap at the bait; ordinary traps do not always insure the action of the fall.]

STEAM BOILERS—T. G. Boone, of Brooklyn, N. Y.: I claim the arrangement of the vertical water tubes, fire surfaces, upper and lower water spaces, and non-conducting lining for giving circulation, substantially as set forth.

[The object of this improvement is to obtain a large amount of heating surface, and to have it always covered with a thin sheet of water, so as to take up the heat of combustion rapidly and economise as much of it as possible during the quick ascent of the heated gases up the chimney; also the heat of radiation. The heat is applied directly to the upright tubes which connect an upper and lower chamber, between which the water is thus made to circulate.]

COTTON GINS—Leonard Campbell, of Columbus, Miss.: I claim, first, the combination of the two brush cylinders, E F, and brush bar, I, arranged substantially as shown and described.

Second, I claim the employment or use of the mote board, J, when constructed of two planes, d e, placed at such angles, or in such a relative position to each other, as shown and described.

[The brush cylinder, F, picks the cotton off the saws and carries it round, when it is taken off by the other brush cylinder, E. The brushes on the upper concave surface of I are in contact with E, and the ginned cotton is discharged from between them. The mote board, J, is placed at the back end of the frame, and by its construction it separates the heavy or motey cotton from the cleaned and lighter cotton.]

SEED PLANTERS—L. W. Colver, of Louisville, Ky.: I claim hinging the pieces, A, which support the wheels, A', at the point, B, this being also the point of attachment of the arm, D, and interposing between A and D, a spring, F, so that said two pieces may radiate from nearly the same centers; said springs tending to hold the wheels into the ground whilst each one of the series may yield to any inequalities in the ground without affecting the others, as set forth.

I also claim the arrangement of the sword or divider, such as described upon the tube, I, and projecting it forward in close contact with the flange on the wheel, so that it may enter the ground with said flange, and spread and hold open the furrow for the reception of the seed as described.

STOP MOTION OF KNITTING MACHINES—Robert Cushman, of Pawtucket, R. I.: I claim the finger, W, placed in contact with and resting against the fabric so arranged that when the fabric is too imperfect to support the finger, W, it will vibrate and stop the machine, substantially in the manner described.

I am aware that an apparatus has been applied to knitting machines to throw off or release the driving power when the yarn supplied to the machine is broken or run out, so as to allow the machine to stop; therefore I do not claim broadly the application of a stop motion for that purpose when used without a friction or other clutch to stop the machine instantly when the driving power is released.

But I claim the lever, f, actuated by the levers, i and i', in combination with the rock shaft, b, and the friction clutch, S and S', when arranged and operated substantially in the manner described, so that the instant the thread, or one of the threads break, the motion of the machine is arrested.

CARRIAGE WHEELS—D. W. Clarke and S. H. Gray, of Bridgeport, Ct.: We claim constructing the wheel as shown and described, viz., having the fellies, C, constructed of malleable cast iron, in the form shown, and having the spokes, B, fitted in mortises in the hub, A, and in sockets, a, on the inner surfaces of the fellies.

The spokes, B, having sockets, d, secured on them at about their centers, in which the inner ends of short oblique spokes, e, are fitted, the outer ends of said spokes, e, being fitted within oblique sockets, a, on the inner surfaces of the fellies, as shown and described.

[The tire of this wheel, owing to the fellies, being made with flanges, are cast to secure the tire without the aid of bolts. But few mortises are made in the hub, as only about half the usual number of spokes are inserted in it. The short spokes, e, in the second claim, give the necessary support to the fellies, and act as braces to the long spokes.—The improvement is principally designed for light carriage wheels with small hubs. It will enable light small wheels to be made very strong.]

BRICK PRESSES—John Chase, of Pequonock, Conn.: I claim, first, the swinging frame, B, constructed, arranged, and operating substantially as shown, for the purpose of feeding the empty molds to the press boxes, and discharging the filled molds therefrom.

I am aware that devices have been previously employed for preventing stones and hard substances from being pressed against and into the molds by affording facilities for removing said stones and hard substances from the molds before the clay is pressed into them. I therefore confine myself specially to the device shown and described for that purpose.

Further, I claim the employment or use of the lever or pendants, r, constructed with projections, n, and placed between the bars of the grates, I, as shown, so that as the filled molds are forced downward from between the grates, I, and friction rollers, j, the stones should any be in the molds, will act against said projections and turn the pendants, so that a passage or opening is allowed for the stones to drop through.

[The first claim relates to an improved mode of feeding of the molds, and their discharge. The second relates to the separating of stones from the molds, which may have escaped separation in tempering process.]

WRISTBANDS OF SHIRTS—R. K. Chandler, of Richmond, Va.: I claim making wristbands with double flaps, substantially in the manner and for the purpose set forth.

STAVE MACHINE—Daniel Drawbaugh, of Eberly's Mill, Pa.: I do not claim separately, any part of the above machine, but I claim the combination and arrangement of the following parts, to wit. Making the frame, F, to vibrate on the shaft, G, and hinging it (the frame, F) to the bed, C, so as to operate it with a vibrating motion on the pivots, a, and slides, P P, with the brace, R, which renders the bed, C, rigid to traverse parallel so as to cut the lumber either curved or straight, as required for staves, heading, or other purposes, substantially as described, the bar, D, being changed or reversed as described.

[The bed, C, secured to the vibrating frame, is that on which the block of timber is placed from which the staves are cut. A gauge is placed before this bed to gauge the thickness of the staves, and a knife above it. The bed, C, with the block, is moved towards the gauge, then, by a lever, forced up against the knife, and a stave cut out.]

WARM AIR FURNACE—Michael B. Dyott, of Philadelphia, Pa.: I claim the arrangement of devices described, to wit: The movable fire pot, E, the air flue, J, and chamber, or fire space, L, constructed and operating in the manner and for the purpose substantially as set forth.

SEWING MACHINES—Chas. A. Durgin, of New York City: I claim the vibrating hook for holding down the thread during the partial passage of the shuttle through the loop, when arranged and operating substantially in the manner described.

UMBRELLAS—Wright Duryea, of New York City: I claim umbrellas with ribs made in two parts, so constructed that one part slides on, or traverses in or beside the other part, viz: connecting the stretchers to the outer or traversing portions or parts of the ribs, so as to hold the said portions out in their proper positions when the umbrella is spread, substantially as described: and also that those portions of the ribs to which the stretchers are connected may be traversed by moving the stretchers and slide as described, when the umbrella is closed.

VALVE GEAR FOR OSCILLATING ENGINES—M. D. DuBois, of Newburg, N. Y.: I claim, first, furnishing the rock shaft, E, by which motion is to be given to the valve or valves with three arms, c, f, f', arranged substantially as described, so that the arm, c, will be brought by the oscillation of the cylinder into contact with a fixed stud, g, and thereby be caused to give a movement to the valve to open the ports, and that the arms, f, f', will alternately be brought by the same means into contact with fixed spring catches, h h', for the purpose of giving the valve a movement to close the ports, as fully set forth.

Second, I claim furnishing the rock shaft with two arms, d d', arranged substantially as described, to strike two fixed pieces, i i, when necessary to throw the arms, f f, into a position to be caught by the spring catches, h h', for the purpose of moving the valve to close the ports.

[The shaft, E, passes transversely through the steam chest, and carries a segment which gears into a rack on the back of a valve; it also carries three arms, c f f. On the bed plate of the engine, there is a standard which carries a sliding piece with a fixed stud, g. This stud operates the arm, c, and opens the ports. The same standard carries the spring catches, h h', which actuate the arms, f f', and close the ports, all by the oscillations of the cylinder, being very simple devices for this purpose.]

CUTTING SCREWS ON BEDSTEAD RAILS—Henry Gross, of Tiffin, Ohio: I claim the mechanical combination and arrangement of the double V cutter, and the manner it is secured in the cylinder head when used by the screw head, j j.

Also the changes from right to left, by which changes right and left handed screws are cut with the same cylinder head and double V cutter.

I also claim the mechanical arrangement and combination of the lever, h, the wedge, f, and nut blocks, e e, when working together in the manner described, viz: the nut blocks being right and left longitudinal sections of female screws, and used to direct the course of the shaft to which the cylinder head is attached, the wedge by which the nut blocks are changed, and the lever which guides the blocks and keeps them in their proper place when the change is made.

I also claim in combination as above, the double clamp, l, and nut, m n, as shown, the screw by which the clamp is opened and closed, and the rest block for supporting the rail while being cut.

All the foregoing I claim as a combination and arrangement for the purposes aforesaid, new, different, and far surpassing any machine now in use for cutting these screws.

All else, and all other parts of machines designed for the same purpose, I disclaim.

FIRE ARMS—Henry Gross, of Tiffin, Ohio: I claim the combination and arrangement of the cap cylinder with the cylindrical rollers as described and shown.

All else, and all other parts of said gun, I disclaim.

GRAIN HARVESTERS—Jonathan Haines, of Pekin, Ill.: I claim so hinging of the platform to the finger bar and frame, as to facilitate the raking, break down the stubble, and leave the gavels in better condition to be gathered by the binders, substantially in the manner set forth.

HULLERS OF BUCKWHEAT—C. B. Horton, of Elmira, N. Y.: I am aware that conical stones have been used for the grinding of grains, therefore I do not claim that as my invention. But I claim the arrangement and combination of the fan, j j j j, with the suction spout, J J, the discharge openings, R Q, and the stones, B and C, substantially in the manner and for the purposes set forth.

TREE NAIL MACHINE—J. W. Hoagland, of Jersey City, N. J.: I claim, first, the use and employment of the circular plate, B, with its diagonal slots, a, to concentrate or expand the cutter, and thus regulate the size of the treenail in the manner described.

Second, the use and employment of the follower, H, with its apparatus of band and wheel to govern the gauge, U, so that the tree nails may be made uniform in size, arranged and constructed substantially as described.

Third, the use of the levers, R, and their apparatus of ovals, b, to separate the feed rollers or allow them to approach each other for the purpose of holding the tree nail firmly while it is being enlarged or diminished in the manner shown.

Fourth, the use of the pattern gauge, U, and the stem, Y, to govern the circular plate.

CARRIAGE SPRINGS—M. G. Hubbard, of New York City: I claim the employment of a bar extending under the carriage, substantially as herein described, which by its torsion acts as a spring, in the manner and for the purpose set forth.

WHIFFLE TREES—Isaac Krebs, of Winchester, Va.: I do not set up any claim to the construction of the usual form of whiffle tree, nor of any of the devices used, separated and apart from each other, being aware that many devices forming a whiffle tree for disengaging animals from vehicles, have been made and used in many forms, with sliding bolts, and spiral or helical springs, in combination with separate and distinct levers operated by connecting links or cords, but none of these devices or their combinations do I claim.

I claim the construction of a whiffletree with the continuous sliding bolts or trace fastenings, rods, b b b, communicating directly with, and attached to one single and the same lever, together with the staple, d, one single flexible spring, e e, clevis clips, f f, in combination and through all of which, are actuated and retained in position simultaneously at one and the same time, the continuous sliding bolts, b b, substantially in the manner shown, and as described for the purpose set forth.

CARRIAGE FOR STEAM FIRE ENGINES—A. B. Latta, of Cincinnati, Ohio: I claim the combination of the piston rod, connecting rod, and cranks with the shaft, couplings, and driving wheels, as described, so that the same power that operates the fire engine may at pleasure operate the driving wheels for the locomotion of the carriage, or leaving them stationary while the engine is performing its duty, all substantially as described.

I also claim connecting the forward guide wheel to the body of the carriage by the large horizontal ring in which it revolves, in combination with the vertical springs and brace springs for supporting the boxes against shocks experienced in running over pavements and other rough places, as described.

I do not claim either the ring or the springs separately, but only the combination in the manner and for the purposes substantially as set forth.

I also claim combining hooks, rests, or other equivalents, with the body of the carriage to support the suction hose without detaching them from the induction ports of the pumps, substantially as described.

AIR HEATING COOK STOVES—C. B. Loveless, of Boston, Mass.: I do not claim the arranging a narrow hot air chamber in rear of an oven, and so that the flues which conduct the smoke to the rear part of the oven, shall also carry it into contact with one or both of the opposite sides of the said hot air chamber.

Nor do I claim the combination of hot air fixtures or flues with the heating and culinary apparatus of a cooking range or stove, because such a combination is well known, and has been used for many years.

Nor do I claim merely arranging hot air flues, smoke flues and one or two ovens, so that the smoke, while passing in contact with the hot air pipes or flues, may also pass against the three or four sides only of either one or both ovens.

But I claim my improved arrangement of one continuous smoke flue around an oven and against hot air flues arranged as described, whereby not only are the hot air flues and four sides of the oven subjected to exposure to the heat of the smoke while coursing through such continuous flue, but that the end of the oven and the end of the vertical hot air chamber, G, are also exposed to be so heated.

My invention being an important and useful improvement on the general combination and arrangement of hot air and culinary fixtures referred to and described.

FARM GATES—H. B. Lum, of Sandusky, Ohio: I claim having the lower ends of the gate, A, secured by pivots or rods, c c, to a sill piece, C, and having a series of strips, d, placed on sleepers or secured in any proper manner on the ground at one side of the gate, spaces being left between said strips to allow the bars or rods, b, to pass therein, the gate having a weight or counterpoise, E, one or more attached to it by a cord or chain, f, which passes over a pulley, e, attached to the post, D, one or two posts being employed, the gate being operated by the levers, G G, with the cords or chains, g g h, attached thereto. The above parts being arranged substantially as shown and for the purpose set forth.

[This improvement relates to balance gates, which can be opened and closed by a person on horseback or in a carriage. The gate is moved vertically up and down by levers which are placed conveniently to be pushed forwards or backwards in a very simple manner.]

SPARK ARRESTERS—David Matthew, of Philadelphia, Pa.: I claim the separating head or core having the surface that is exposed to the current from the chimney formed of cavities or projections and openings for the purpose of separating the sparks from the current of gases.

I also claim the saddle pipe for the purpose of supporting the head and conducting the current of sparks and gases through it, substantially as described.

TOOL FOR GROOVING MOLDINGS—R. J. Marcher, of Salisbury Mills, N. Y.: I claim tenoning or cutting transverse and parallel grooves, g, in concave portions, f, of moldings, B, by means of a tool stock, D, attached to a plate, C, by a pivot, E, which is at the centre of a circle, of which the concave forms a part, the cutter, b, being attached to the lower end of a slide, E', which is operated or pressed down when the cutter acts upon the molding by a spring, H, and elevated upon the return motion of the cutter by raising the lever, G, the cutter, a, having a step or guard, c, adjoining it, for the purpose of regulating the depth of the cut, as shown and described.

[These devices for cutting parallel and transverse grooves in moldings, render the tool very adaptable, in being capable of motion vertically and horizontally; and, having a guard, a uniform depth of groove is always insured.]

TOOL FOR GROOVING MOLDINGS—R. J. Marcher, of Salisbury Mills, N. Y.: I claim the reciprocating tool stock, I, slide, J, with cutter, e, one or more, and stop or guard, e', attached to its lower end, and having a spring, K, acting upon its upper end, and the slot, d, in the plate, F, the above parts being arranged substantially as shown and for the purpose set forth.

[This tool stock with cutter (and guide and guard) is for the purpose of cutting oblique grooves in moldings, the other being for cutting transverse parallel grooves. The tool has a pin, which is inserted into and moves in a guide curved slot in a plate, which slot corresponds in form to the curved face of the molding, or that part which is to be grooved. This slot gives an arbitrary motion to the tool, and causes it to rise and fall, so as to conform to the face of the molding.]

LUBRICATING COMPOUNDS—Jacob Marshall, of Reading, Pa.: I claim the combination of ingredients described. I do not claim the use of soap, nor the mixture of soap and oils for a lubrication.

But I claim the combination of whale or other oils mixed with the oleate of zinc, prepared by mixing a solution of soap in water with a solution of acetate of zinc in water in which the oleate of zinc is separated in a saponaceous mass, while the acetate of soda dissolves in the liquid, in the manner set forth.

SUB-MARINE EXCAVAING MACHINES—J. C. Osgood, of Troy, N. Y.: I do not claim the excavating machinery, the well-hole deposits, the railway track and dumping cars, or the drags, when taken separately.

But I claim, first, the combination of the excavating machinery, the railway track and car, and the well-hole deposits of the float or vessel, when combined in the manner substantially and for the purpose of a self-tending submarine excavating boat, as set forth.

Second, I claim the combination of the drags with the vessel or float, constructed as described, said combination being substantially in the manner and for the purposes as set forth.

CORDAGE MACHINERY—Henry Pearce, of Cincinnati, O.: I claim the arrangement of a friction or rubbing collar, operated by a plunger passing upward within the supporting stem, b, and the weighted lever, as described, or equivalent devices for regulating the degree of facility of rotation of the bobbin spindles.

FENCES—J. B. Reyman, of Dubuque, Iowa: I claim the mode of fastening pickets to the rails, in making fences, by means of wire combined and interwoven with the rails, in the manner substantially as described.

I also claim fastening the brace, k, at its upper end to the standard, H, so as to admit of a hinge motion, in the manner and for the purpose substantially as set forth.

DRYING GRAIN—T. F. Rowland, James Stephens, and W. H. Mason, of Brooklyn, N. Y.: We do not confine ourselves to the use of steam for heating, as hot water may be made to circulate through the apparatus instead of steam.

Nor do we wish to be understood as confining ourselves to the special form or construction specified, so long as the same results are attained by equivalent means.

We claim, first, the heating tubes, substantially as specified, in combination with the hopper, as specified, for partially heating the grain or other substance as it passes to the kiln.

We also claim, in combination with the series of perforated or wire gauze shaking pans, the surrounding double metallic casing, the opposite sides of which are connected by horizontal tubes passing under the pans and connected with a steam boiler for the circulation of hot water or steam through the whole casing and connecting tubes, substantially as specified, the said double casing being surrounded by masonry, as specified, the said combination being for the purpose of more effectually and economically drying grain or other substances without the danger of scorching or overheating it, and to avoid the condensation of the vapors evolved from the grain or other substance, which, if permitted to take place within the kiln, not only re-moistens the grain but is otherwise injurious.

And we also claim, in combination with a kiln, consisting of the double casing connected with a steam boiler and surrounding the perforated wire gauze or shaking pans, substantially as specified, the employment of a blast of heated air introduced at the bottom and forced to pass upwards through the kiln and through the perforations in the pans and to escape at top, substantially as specified, for the purpose of driving off the moisture and vapors evolved from the grain or other substance, as specified.

SEWING MACHINES—T. J. W. Robertson of New York City: I claim so arranging and applying the looper, b, or its equivalent, by which the loop in the needle thread is extended or directed, for the purpose of completing the stitch, that it shall derive its movement from the needle, substantially as described.

SEED PLANTERS—Edgar M. Stevens and J. B. Crosby, of Boston, Mass., and J. W. Pearson, of Winchester, Mass.: We claim the application of elastic surfaced feed rollers in sowing machines, in connection with an expanding tube spreader, constructed and arranged substantially in the manner and for the purpose set forth.

OX YOKES—John Tucker, of Norway, Me.: I clam the blocks in which the bows are set, constructed so as to slide upon the rods, d d, &c., as above set forth, in lieu of having them slide upon the under side of the beam to prevent injury, as set forth.

MANDREL FOR CUTTING TAPERING STICKS—George Turner, of Edinborough, Pa.: I claim the construction of my face plate with the two jaws, E E, with the cutter, M, on one of them, and made to close together by means of the right and left screw shaft, H H, moved by means of the cogged wheel, L, and the screw thread, P P P P, on the rim, R R, as described, or by any other construction substantially the same, and which will produce the intended effect.

CURBS FOR WATER WHEELS—John Tyler, of West Lebanon, N. H.: I claim combining the hinged lip, b, as described, with the curb of a water wheel, in such a manner that its inner curved surface forms the termination of the scroll-water-way surrounding the wheel, whilst its straight surface forms one side of the mouth of the said scroll water-way, for the purposes set forth.

SELF-ACTING NIPPER BLOCK—Jonathan Whipple, Jr., of Milford, Mass.: I claim the construction of the nipper block with one wheel or pulley combined with a ratchet wheel, pawls, and levers, and jaw or nipper, substantially as set forth.

TELEGRAPHIC KEY APPARATUS—L. S. White, of Chicopee, Mass., and Lewis White, of Hartford, Conn.: We are aware that it is not new to close and break an electric circuit by means of a moving piece of metal having strips of ivory or other electro non-conducting material inserted within it and made to operate against a metallic spring connected with one pole of an electric battery, while the said moving piece of metal was connected with the other pole thereof; therefore we do not claim such.

But we claim, in combination with a sliding key circuit breaker of such description, a friction slider, a metallic bar, G, and an insulated stop bar, D, or the equivalent thereof, the whole being made to operate together, substantially as specified.

CLOSING AND OPENING GATES, &c.—Caleb Winegar, of Union Springs, N. Y.: I claim the opening and shutting of gates or doors, as described, that is, means of a retentive or reserve power, so that a gate or doorway may be opened or closed a succession of times; let it be obtained by winding up a spring or weight, or whether gear is used or cords and pulleys.

I also claim the application of the wires and the said right angular irons or elbows to the opening and shutting gates, &c., as described, not intending in these claims to limit myself to the precise arrangement of parts described, but to vary the same at pleasure while I attain the same ends by means substantially the same.

SPIKES—John Henry Wygant, of Hackensack, N. J.: I claim providing a spike, A, with a bevel or inclined offset on one of its sides, and employing in connection with the same, a light metal bar or locking piece, C, substantially as and for the purpose set forth.

[The object of this improvement is to lock the spikes when employed under circumstances which do not admit of them being clinched. The off set, just before the bar, C, is driven home, bends its end, and causes it to take a lateral instead of a vertical direction, and consequently a firm hold of the timber.]

BANK LOCKS—Linus Yale, of Newport, N. Y.: I do not claim separately the rods, e e' working in holes in the bolt B, and a sliding frame, C, for that is an extremely old fast, ening, and used in locks many years since.

But I claim the sliding frame, C, and plate, D, in combination with the rods, e e', when constructed and arranged as shown, so that the plate will, during the operation of unlocking the lock, cover the opening or key-hole, E', in the casing before the bolt can be thrown back, thereby preventing the lock from being picked, or impressions taken to form a key.

I also claim unlocking the lock by means of a segment key, F, which is placed within a corresponding shaped recess, g, in the plate, D, by possing said key through the opening or key-hole, E', and moved with said plate so that when the bolt, B, is thrown back, the recess, g, and key, F, will be in line with or opposite to the opening, k, in the knob, E, thereby allowing the key to pass out of the recess, g, through said opening, k, into the hand, as shown and described.

[The segment key, F, is a shooting bolt of cunning adaptation. It is placed within a recess in the lock, and must be shot from the lock before the latter can be opened. It renders the lock unpickable, because there is no room for a burglar to tamper with it, and take an impression in wax to form a key.]

KNITTING MACHINES—J. B. Aiken, (assignor to himself and Herrick Aiken,) of Franklin, N. H.: I claim, first, the needle latch regulator, constructed and operating in the manner substantially as described for the purpose set forth.

Second, I claim the needle latch regulator in combination with the yarn carrier, operating substantially as set forth.

WATER METER—J. S. Barden, of New Haven, Conn. (assignor to Oliver Stow and G. B. Farnam, of Mendon, Conn.) I claim a cylinder of any given size, with a common plunger within it, open at both ends and secured within a case, divided into two compartments, as set forth, each compartment with their heads, acting as heads to the cylinder, and reservoirs to receive the sediment either drawn in, and not thrown out, or that which may be deposited from the water.

Second, I claim the reservoir for the collection of sediment, whether connected with a cylindrical or a rotary water meter.

Third, I claim the mode of moving and throwing the valve, as set forth.

Fourth, I claim the casting or turning of a groove upon the circumference of a piston plate and around its entire diameter with holes drilled from the base of the same through on the inside, in the manner and for the object set forth.

Fifth, I claim the entire combination for the object, as set forth.

SCREW WRENCHES—F. S. Coburn, of Ipswich, Mass. (assignors to Ruggles, Nourse, Mason & Co., of Worcester, Mass.): I claim arranging and combining with the angular recessed head, C, of a handle, A, a movable notched jaw, operated in manner with respect to the recess of the head, and by means substantially as described, the same rendering the wrench adjustable to nuts or screw heads of different sizes, and capable at the same time of embracing them on their four sides.

BURING FLUIDS—Abraham Gesner, of Williamsburgh, N. Y. (assignor to The Asphalte Mining and Kerosene Gas Co., assignor to said Gesner, and by said Gesner to The North American Kerosene Gas Light Co.: I claim as a new manufacture, or composition of matter, the burning fluid composed of alcohol and A. kerosene, as specified.

HOSE COUPLINGS—L. E. Hicks, (assignor to himself and G. N. Davis,) of Boston, Mass.: I do not claim a common annulus of leather as a packing for the screw joint of a hose coupling.

But I claim combining the two parts or halves, A B, of the coupling by means of a locking or bayonet connection, or the equivalent therefor, and an elastic tube, F, possessing sufficient elasticity not only to form by its expansive power, when compressed, a joint under pressure of a liquid within the hose as explained, but to maintain the locking connections in place when their catch stud is in its recess, as described.

I also claim making the bearing shoulder, r, conical, or so as to cause the circumference of the tube, F, to be borne against the cylinder seat, S, by the expansive power of the tube, acting against such conical part, as described, the same being not only to give support to the tube, F, but to aid in maintaining a close joint, against the pressure of the fluid in such tube, as explained.

I also claim the shoulder tube, u, u, as combined with the elastic packing tube, F, and the part A, and used substantially in manner and for the purpose of supporting the tube, F, as specified.

SWELL FOR MELODEONS—T. F. Thornton (assignor to G. A. Prince and Thos. Stephenson,) of Buffalo, N. Y.: I do not claim the whole swell when acted upon by the foot pedal J, the rod, g, and levers, h h, when the swell is not divided, as I am aware that it is now so constructed and used.

But I claim the divided swell, constructed substantially as set forth, so that one half, or part, may be used separately, when desired, for producing more variety in the tone of reed instruments, such as melodeons, melopeans, seraphines and red organs, all of which are very similar in construction.

SEWING MACHINES—Joseph Bond, Jr., of Philadelphia, Pa.: Although I have described the construction and operation of an entire sewing machine, I wish it to be understood that I do not lay any claim to the feeding apparatus or to the method of actuating the needle.

But I claim, first, the spool case, I, with teeth or their equivalents on its outer edge and the nose, L, for catching the needle thread in combination with the wheel, H, having teeth cut away at p, substantially in the manner and for the purpose specified.

Second, the hollow spool case, I, with its spool, M, in combination with the radiating arm, N, or equivalent, as shown and described.

Third, I claim the auxiliary lever, X, as operated by cams on the driving shaft (not for the purpose of controlling the needle thread between the eye of the needle and the goods, as in Harris' and Howe's machine, nor for the purpose of tightening the stitch, as this is done by the needle bar, but) in conjunction with the spool case, I, so as to accommodate the needle thread as it passes over the spool case, thereby diminishing the extent of movement required in the needles of other machines.

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ADDITIONAL IMPROVEMENT.

CRUSHING QUARTZ, &c.—James Hamilton, of New York City. Ori inally patented Jan. 3, 1854: I do not claim adjusting screws or weighted levers to act in connection with grinding surfaces, but by the use of these parts in combination with the pestle contained in the patent mentioned, I am enab ed to obtain the new and useful results of adapting the machine for grinding or crushing various sizes and characters of ores. at the same time that the machine is comparatively light and portable.

Therefore I claim as an improvement on the patent mentioned, of 3rd Jan. 1854, the combination of the weight levers, 12. and adjusting screws. 11, with the pestle, d, set and moving on the shaft, c, the whole constructed and operating in the manner and for the purposes substantially as specified.

RE-ISSUES.

ENDLESS CHAIN HORSE POWER—A. F. Wheeler, executor of W. C. Wheeler, deceased, and Alonzo Wheeler, of Albanp. N. Y. Originally patented July 8, 1841: What is claimed is the links, c, of the parallel endless chains which carry the traveling bed formed with cogs on their inner edge meshing into side pinions, k, on the driving shaft when the latter is arranged back of the forward end of the power to receive motion by the straight run of the cog links over the said pinions, as shown and described.

BLEACHING APPARATUS—C. T. Appleton, of Roxbury, Mass. Originally patented April 17, 1855: I claim the combination of one or more air-tight vats for receiving and containing the goods, an apparatus for exhausting the air therefrom, and the necessary vessels for containing the liquids used in the process of bleaching, whereby the various steps may be performed in a much shorter space of time than has heretofore been required, as set forth.

DESIGN.

WATER COOLERS—George Hodgetts, of New York City.

[NOTE—We are gratified at the result of the Office labors last week, and we hope the examiners will keep vigorously at their task until the arrearages in their departments are brought up. Since the first of last January, applications for patents have so increased that the Office has been unable to examine cases as fast as presented, hence some classes do not present that "posted-up" state at this time, which the Commissioner's exhibit showed when his encouraging and able Report was last made to Congress. With the new addition of examining force, we expect an increase of patents weekly issued, besides, in some cases, more careful examinations made, and better reference given in cases of rejection. ONE THIRD of all the patents in the above list were secured through the SCIENTIFIC AMERICAN Office.

Why there is no Rain in Peru.

In Peru South America, rain is unknown. The coast of Peru is within the region of perpetual south-east trade winds. Though the Peruvian shores are on the verge of the great South Sea boiler, yet it never rains there. The reason is plain. The southeast trade winds in the Atlantic ocean first strike the water on the coast of Africa. Traveling to the northwest, they blow obliquely across the ocean until they reach the coast of Brazil. By this time they are heavily laden with vapor, which they continue to bear along across the continent, depositing it as they go, and supplying with it the sources of the Rio de la Plata and the southern tributaries of the Amazon. Finally they reach the snow-capped Andes, and here is wrung from them the last particle of moisture that that very low temperature can extract.—Reaching the summit of that range, they now tumble down as cool and dry winds on the Pacific slopes beyond. Meeting with no evaporating surface, and with no temperature colder than that to which they were subjected to on the mountain tops, they reach the ocean before they become charged with fresh vapor, and before, therefore, they have any which the Peruvian climate can extract. Thus we see how the top of the Andes becomes the reservolr from which are supplied the rivers of Chili and Peru.—[Lieut. Maury's Geography of the Sea.

Triumphs of Railroads.

According to the Louisville *Journal*, that city is entirely run round by the recently constructed railroads through Ohio and Indiana. The *Journal* says:

"We know of no other city in all this vast Union that is just now suffering so much injury from the effects of the superior enterprise of other communities as Louisville. The construction of numerous rail ways in every direction, North, East, and West, while none have been built South, has had the effect to divert both travel and trade from her, and no effort worthy of respect has been made to counteract this tendency. Cincinnati has also been a sufferer from the injurious influences of the network of railways that have been spread out on the north between that city and the lakes. But her citizens have had the sagacity to perceive the evil, and to remedy it, propose to extend railroads to the South, which will give to Cincinnati a decided advantage in competing with Louisville for the trade in that direction."

The Zodiacal Light.

It is said, in scientific circles in Cambridge, that Lieut. Jones has discovered by observations on the zodiacal light, that the Earth has a ring like Saturn's.—[Ex.

Is this so?

Foreign Editorial Correspondence.—No. 1.

Paris Exhibition, &c.

PARIS, May 3, 1855.

While the political journals of Europe are busy in discussing the troubles, progress and prospects of the war in the Crimea, there is going on towards completion, in this city, a grand monument to the genius of the Empire.

Paris is richly ornamental in works of art, and with the souvenirs of illustrious men, but none of its attractions possess a tithe of the true greatness which will center in the Palace of Industry which is now nearly ready for the reception of articles of handicraft from every civilized nation of the world. The structure is not a mere shadow, intended only as a thing of to-day, on the contrary it is an enduring and beautiful edifice, of a cream-colored stone, and is most admirably located in the Champs Elysées on the left of the grand avenue that leads from the Place de Concorde to the Arch of Triumph—probably the theatre of the most fashionable display in the world. On every pleasant day this thoroughfare is thronged with the tasteful equipage of the wealthy and great, and here the Emperor Napoleon is usually to be seen in the plain habit of a citizen, mounted upon his favorite horse, attended by two of his aids. It was here that the late diabolical attempt was made upon his life by the Italian shoemaker, Pianari; an event which sent the blood of Paris up to boiling heat,—for it is a fact, which no intelligent person can ignore, that the Emperor is the most popular sovereign since the days of Napoleon the Great. The Emperor is really worth seeing on his afternoon excursion, not because he is the Sovereign of France, but because of his exquisite horsemanship, acknowledged the best in all Europe.

The location of the Palace of Industry is admirable, and illustrates the executive tact of the French in all such matters. It makes an American almost blush for the honor of his country whenever any comparison is attempted between the New York and Paris Exhibitions. It is an old saying that "comparisons are odious," and although I have never adopted this maxim without some restriction, yet for the present I find it most convenient and highly appropriate.

The truth is, this Exhibition has been wisely kept out of the hands of speculators, whose dirty assiduities never get above the clinking of dollars and cents. It is managed by energetic practical men, who are able to bring their experience to bear with effect upon every department. The executive head is Prince Jerome Bonaparte, a man not lacking altogether the business capabilities of the family.

The main building of the Palace of Industry contains about 50,000 square yards of space. Its front on the avenue has a magnificent entrance, surmounted with a very superb allegorical group, which illustrates France in the act of crowning Science and Industry.

A supplemental building, or Machine Arcade, is now nearly complete: it runs along the banks of the Seine some three-quarters of a mile, and will contain about 4000 square yards. It resembles an extensive railway station, and the view from one end to the other is uninterrupted and beautiful. In the center, workmen are now busily employed in planting upon solid foundations of masonry, ornamental standards which are to support the shafting for the machinery. This building will very soon be in readiness for its treasures, and also soon, will be occupied with the throbbing and clicking of every variety of useful machinery. This large arcade will be insufficient for the machinery, and in order to meet the demand for the required space, a large building, used formerly for amusing exhibitions, is being fitted for the receptacle of agricultural implements.

There are in the interior of the principal buildings, twelve stone stair cases of broad dimensions—they are kept entirely out of the interior square, which leaves a large open space in the center for the ready transmission of light through the glass roof to every part of the building. The effect produced by the articles placed upon exhibition in the main square will be grand and harmonious, as from the broad and spacious galleries the spectator will be enabled to grasp at one view an elegant picture of life and beauty. I visited the building a few days since in company with Maunsell B. Field, Esq., President of the American Board of Commissioners, and was shown the space allotted by the Imperial Commission to the United States, and I was struck with the extraordinary compliment paid to our country; the gorge began to rise within me, when I thought of the miserable show which will be made by our people, and of the very shabby manner in which the Government at Washington has treated, in this matter, our Revolutionary allies. At the time of the London Exhibition, the Administration then in power detailed a frigate for the transmission, at government expense, of all articles contributed by the States to the Exhibition. Commissioners were appointed to take charge of the contributions, and the result was, some seven hundred articles of American handicraft were sent to London. With one or two exceptions, we cut a sorry figure at that time; and what will you think when I inform you that there will be less than one hundred articles from the United States, and these prinpally from New York.

The space awarded to the United States is immediately in the center of the main building—the position chosen for the Emperor's throne during the inaugural ceremonies.

The Canadians are here to be represented by a greater number of contributions than the whole thirty-one States, and the Commissioners have at their disposal about $50,000 in cash. The space allotted to Canada is too dwarfish for their purpose, and as there is no longer any hope for a decent display from the States, a proposition has been broached to amalgamate the articles under the more comprehensive title of the "American Department." Very many foreigners do not know the political differences between North America and the United States—it is all the same to them. And we shall be able, in this way—by the aid of our Canada friends—to pull wool over the eyes of a great number of Europeans. If this desirable amalgamation can be carried into effect, Canada will have the *extreme satisfaction* of fitting out, at its own expense, the entire "American Department." Well done Canada! Not so far behind after all.

One feature of the United States Department cannot fail to be of vast interest, in a biological point of view. An enterprising citizen of Texas proposes to exhibit some specimens of dressed alligators' skins; these skins, taken together with the number of Commissioners from the United States, will form the nucleus for much philosophical reflection. Every State promises to be well represented; one State has already appointed ten Commissioners, and is expected to add at least ten more. The question is asked, "Gentlemen, what has your State to show in the Palace?" "Nothing," is the answer, "excepting its Commissioners." The Imperial Commission, anticipating so much annoyance from so many officials, wisely determined not to admit but one from each State—making an exception in favor of New York, by admitting two, Messrs. Fleischman and Wales.

While in London, a few days since, I was informed by our Minister, Mr. Buchanan, that the New York Exhibition had neglected to return to England the collection of armor and other ancient specimens of war accoutrements, contributed by Great Britain. These relics of barbarity were taken from the Tower of London, and are regarded with great veneration by the English people. I wonder if the "New York Association for the Exhibition of the Industry of all Nations" mean to keep these relics? if not, why do they not return them promptly to their rightful owners? I understand that the English Government have been obliged to take the matter in hand.

Before leaving London, I noticed in the *Times* a very lengthy advertisement under the caption of the "Smith Testimonial Fund." It seems that not long since an entire fleet of screw propellers, larger than ever before left a British port, departed from Spithead, and this event suggested the question, "to whom is England indebted for the introduction of screw propulsion, which has enabled her to send forth the most powerful fleet the world ever saw?" After a careful examination made by a provisional committee, it was decided that the credit was due to Francis Petit Smith, and an appeal in his behalf has resulted thus far in subscriptions from various persons of over $15,000, with a fair prospect of its increase. It is also expected that the Government will take the matter in hand, and bestow upon Mr. Smith a pension for his great service to the maritime interests of the Kingdom.

It will please you very much, I am sure, to notice the generous recognition of an inventor's claims by his countrymen. England, although the best cultivated country in the world, would be destitute of working muscle if bereft of the life which its ingenious men have infused into it. The English understand this better than any other people, hence the reward to Smith and other eminent inventors. S. H. W.

Fish Tasted Water.

The water in use at Trenton, N. J., from the water works, has now a disagreeable fishy taste and smell. Mr. Wurtz, State Chemist, has been examining some, which, after evaporation, left residuum dark in appearance, and like a flaky dust, containing much nitrogen, and showing the presence of animal matter. Further experiments will be made by a microscope, and by chemical analysis. Some think the taste arises from the presence of innumerable animalculæ, such as were found in the Cochituate water at Boston, or by an impregnation of mucus imparted by the small fish which are pumped up into the reservoir from the river and die in the pipes.

Glue for Plants.

It is reported that, in France, for the generality of flowers, and more especially for the most delicate specimens of the lily tribe, common glue, diluted with a sufficient portion of water, forms a richer manure than guano, or any other yet discovered; plants placed in sand, or the worst soils, display more beauty and vigor, when watered with this composition, than those grown in richest mold, and sprinkled with water.

To Restore Pork.

In warm weather, the brine on pork frequently becomes sour and the pork tainted. Boil the brine, skim it well, and pour it back on the meat boiling hot. This will restore it even when it is much injured.—[Genesee Farmer.

[Will this plan really accomplish the object? the taint of meat being caused by partial decomposition.

Correction.

In publishing the engraving of Wright's Cultivator Plow, May 19, it was inadvertently styled a Horse *Shoe* Cultivator Plow. It should have been called a Horse *Hoe* Cultivator Plow. It is a good invention, and we presume that no matter what its name is, it will find a very general introduction.

Mineral Razor Strops in North Georgia.

The editor of the North Georgia *Times* has been presented by Col. A. D. Shackelford, of Gordon county, with a splendid hone for razors, which was taken from a quarry on his place, in that county. We doubt if there be any article or material of utility or luxury, from cotton and rice up to whetstones, that may not be found in her limits. Here we have, indeed, razor strops of nature's workmanship, ready for use, turned up in in the mineral regions of Georgia.—[Sav. Georgian.

A strong solution of alum with some whiskey mixed in it, is said to be a most excellent remedy for the galled shoulders of horses. Apply it three times a day until the wound is healed.

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New Inventions.

Improved Way of Making Bread.

The Paris correspondent of the *Commercial Advertiser* speaks of a plan invented by a baker of that city to reduce the cost of bread. "He puts in one part of rice to five of wheat flour, and the economy effected reaches the very considerable figure of one *sou* in the two pound loaf. The demand is such that the baker cannot supply it. Neither the nutriment nor the taste of the bread would appear to be affected by the presence of the new ingredient."

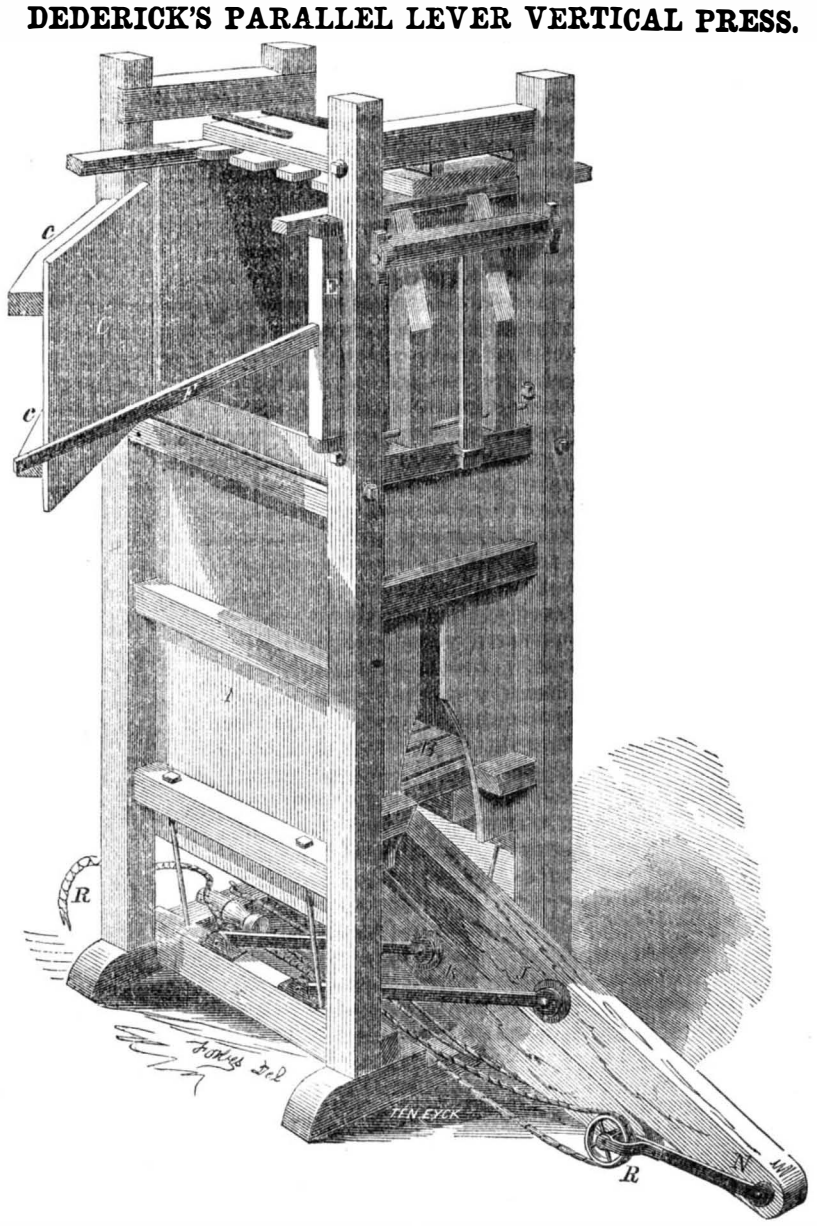
[We do not see that there is anything new in this to call it reducing the cost of bread, any more than if the baker had added so much indian corn meal.

Improved Cotton Press.

The accompanying figure is a perspective view of an improved press for pressing cotton yarn, cloth, hay, cotton, &c., into bales, for which a patent was granted on June 6th, last year, to Levi Dederick. On page 384, Vol. 9, SCIENTIFIC AMERICAN, there is a perspective view of the same patented principles and devices applied to a horizontal press, for pressing hay, cotton, &c.; this view shows the same principles and devices applied to a vertical press, which for many purposes is more convenient.

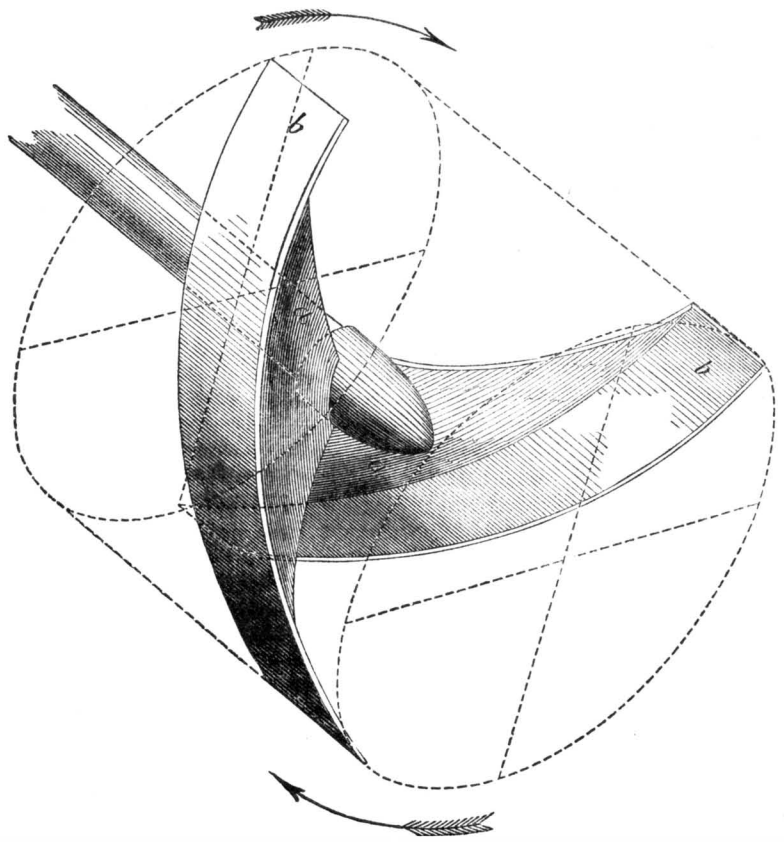
A is the box of the press. C is the door to feed in the cloth or yarn, &c., to form a bale. *c c* are the two beams of the door, secured at one side to a vertical axis in a corner post, so as to swing in and out. H is a bar secured to another vertical axis, E, secured to the opposite post of the frame.—When the door, C, is shut during the act of pressing, the bar, F, is swung round in front, and its outer end set into a notch in the axis of the door, so as to bar and hold it close on the outside. To open the door when the bale is pressed, the bar, F, has but to be taken out of its notch. In order to fill the box rapidly, a door is placed on each side opposite one another. One side of the box on a level with the door, is secured at the bottom to a horizontal axis, and is allowed to swing out a little at the top, for the easy discharge and handling of the bales, but it is barred in, when the bale is being pressed. B is the bottom of the press; the inner ends of the parallel levers, J K, are secured to it on swivel joints, and it rises and falls with the levers, the bale being pressed against the strong bars or block forming the top or cover. The bottom has friction rollers secured at two sides so as to move up with a very small amount of friction against the box sides. The parallel levers, J K, being secured on joints to the under side of the bottom, they are connected at their outer ends by an arm, N, on each side, with an axis pin passing through each. They are also connected by four legs or levers, two on each side, the feet of which turn on axes in boxes on the bottom sills of the frame; their tops are secured by axis pins passing through the levers.—These legs are set at a certain distance apart, and their upper ends are connected to the levers, at the same distance apart. The levers, J K, are represented as being down and no bale shown in the box, therefore, one leg is shown connected to J, and the other to K. By raising these levers upwards, it will be observed that they must move parallel, and exert an equal pushing force upwards on the bottom of the box, thus pressing the bale truly. This principle of pressing is that of combined levers, forming the "toggle-joint." These levers are operated by block and tackle. R is a cord secured by one end to a staple on the bottom of the frame, then passing over a pulley on the opposite side of arm, N, then back, and around a horizontal pulley at the bottom of the other end of the frame; then forward, and around the nigh pully at R below N, then back to a windlass, around which it passes, and by which it is wound up to force up the levers, rising through the slot in the side in pressing; or it is wound off, to let down the levers and the bottom of the box for refilling, in which position it is now shown. The windlass may be operated by belt and pulley, from a steam engine, or water wheel, or it may be operated by animal or manual labor. The operation of this press is exceedingly simple, and will be easily understood. The parts of it are so few in number, and it is all so simple in construction, yet so effectual in its working principle, that its merits deserve to be known far and wide. By placing it on wheels, it can be moved from place to place, and when its parts are separated, they can be put together by any man who can handle a hammer or wrench intelligently. One of these presses is in operation in the cotton factory of N. Wild & Sons, Valatie, Columbia Co., N. Y., and another in the New Harmony Mills at Cohoes, N. Y., for baling cloth, for which purpose they are well adapted in factories and warehouses.

DEDERICK'S PARALLEL LEVER VERTICAL PRESS.



More information may be obtained by letter addressed to Deering & Dickson, manufacturers, Premium Agricultural Works, Albany, N. Y.

TYSON'S PROPELLER.



This figure is a perspective view of a new propeller for vessels, for which a patent was granted to Wm. F. Tyson, of Tamaqua, Pa., on June 21, 1853.

This propeller consists of inclined blades ecured to a hub; the peripheries of the blades are everywhere equi-distant from the axis on which the propeller turns, and are furnished throughout their whole extent with rims, which have the form of helical strips cut from the barrel of a cylinder, and project backwards from the blades to confine the water on which the latter is acting, to prevent it from being thrown outwards by the centrifugal force generated by the revolution of the blades.

a a are the propeller blades, each consisting of a plate of metal secured in an inclined position to a central hub, which is made fast to the propeller shaft. Each blade is straight edged at its front, *a*, or that end which enters the water; their hind edges are curved as represented at *b*. The outer edge, or periphery, of each propeller is at every point equi-distant from the axis of the shaft, so that in revolving it will describe a cylinder of which the axis of the shaft is the axis. The periphery of each blade is fitted with a rim, which projects behind it; this rim has the form of a strip cut from the cylinder described by the rotation of the blade. It confines the water upon which the blade is acting, and prevents it from being thrown outwards by the centrifugal force which is generated by the rotation of the blades, and thus allows of the propeller being made with a greater pitch than those in general use, while at the same time it opposes but little resistance to the forward movement of the vessel.

The object for which this propeller is designed is the propulsion of vessels, and it is believed to be peculiarly fitted for canal navigation, as the rims of the blades, by retaining the water, prevent it from moving laterally from the propeller shaft, and thus prevent the production of waves which act injuriously upon the banks.

This propeller is now in successful operation on the canal boat *Isaac Eckert*, Capt. Thos. Armitage, of Manayunk, Pa., who has tried several others, and who says this is the best he has ever used. The Pottsville *Register* of the 28th April last, thus speaks of it:

"It is believed by many scientific gentlemen, who have examined it, that this propeller, will become very important to the shipping interests of our country, and also to the boatmen engaged in carrying coal between Pottsville and New York. If the first trip of the *Isaac Eckert*, propelled by this wheel, may be taken as a basis for calculation, and we think it is fair to do so, the fuel consumed in making a trip between Pottsville and Philadelphia will cost only about as much as the feed required by two horses in making the same trip. A great advantage to boatmen in the use of this wheel will be that they will no longer be dependent upon the tug boats for motive power, from the time they get to Fairmount until they reach New York, but can go on at once without loss of time, and save the money now paid for towage, which, as every captain on the canal knows, is a large item; besides this, a steam canal boat of this kind may probably tow one or more loaded boats along up the Delaware, and make the towage in addition to her own freight."

More information may be obtained respecting this propeller by letter addressed to H. L. Cake, of Tamaqua, Pa.

Decomposition of Fats.

G. Wilson finds that the neutral fats may be advantageously decomposed so as to yield glycerine and fatty acids, by maintaining the heat of the still in which they are placed at a uniformly high temperature, and admitting a constant current of steam. The temperature required varies with the nature of the body acted upon, but in no case does it exceed 560° Fah. Satisfactory results have been obtained with palm oil, cocoa nut oil, fish oil, animal tallow, Borneo vegetable tallow, and Japan vegetable wax. The fatty acid and the glycerine distil over together—but uncombined—in the receiver.—[London Artizan.

On the night of April 19th, Herr R. Luther, of the observatory of Bilk, near Dusseldorf, Germany, discovered a new planet, of the eleventh magnitude.

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Scientific American.

NEW YORK, JUNE 2, 1855.

Substitutes for Steam.

MESSRS. EDITORS—Although it cannot be questioned that the *Ericsson* has completely failed as a hot air ship, according to your prediction, even when the whole American press was nearly unanimous against you, and also many men distinguished for scientific information, still, I cannot but think that some other fluid may be more economical than water, for generating power by the application of heat. Although I cannot controvert your arguments in the article "Steam versus Ether," on page 237, in answer to some correspondent who seemed to speak favorably of the French steam and ether ship, still, it appears to me, that as steam contains so much *latent heat*, that ether must be more economical than water, as I find that the vapor of ether is not set down as being six times denser than steam, as you have it, and all vapors must exert the same pressure at the boiling point. Is not this so? and why may not ether or alcohol be used economically as substitutes for steam. J. R.

New York, May 20th, 1855.

[It is true, as our correspondent remarks, that the vapors of all fluids exert the same force at the boiling point, but that does not solve the question respecting the economy of using ether vapor as a substitute for steam. Prof. Apjohn viewed the question from this stand-point, and overlooked the real one, viz: the quantity of heat in a *given* volume of vapor—steam or ether. We were aware that the vapor of ether had been set down by Dr. Ure, and other authorities, as being only 4·03 times heavier than steam. In the most recent edition of Graham's Chemistry, published in our country, this question—on pages 69 and 70—is touched upon as follows:

"According to the table of M. Brix, the latent heat of the vapor of water is 972 degrees, while that of the vapor of alcohol is 385 degrees; or water has for equal weights about 2·5 times more latent heat than alcohol vapor. The specific gravity of alcohol vapor, on the other hand, is about 2·5 times greater than that of water vapor, taking the former at 1589·4, and the latter at 622; consequently equal volumes of these two vapors possess equal quantities of latent heat. If the latent heat of vapors be proportional to their volume, as these numbers seem to indicate, the same bulk of vapor will be produced from *all* liquids with the same expenditure of heat; and hence there can be no advantage in substituting any other liquid for water as a source of vapor in the steam engine."

We rely upon this authority in preference to Apjohn, or any others who have written on the subject of using ether vapor as a substitute for steam in propelling machinery.

There is no question which appears so simple to us as *latent heat*, and yet it is one respecting which certain scientific men and some professed engineers do not appear to have a proper and clear understanding. They talk and write upon the subject as if latent heat were something exceedingly mysterious, and our correspondent we must place among the number of such. A certain quantity of latent heat is just the same quantity of sensible heat, made to occupy a greater amount of space.—Steam, at atmospheric pressure, contains 1212° of heat, but exhibits only 212° sensible heat, the 1000° being called *latent*. But why call it *latent*, and why is this talked about generally in so mysterious a manner? Reduce this same steam from 1728 times its former bulk as water, to its original bulk, and what do we find? Why, it exhibits 1212° of sensible heat. Latent heat, then, is simply a certain quantity of specific heat distributed over a greater space. We certainly could not expect 1728 soldiers placed on one square acre of ground, to exhibit the same density of columns when distributed over 1728 square acres. Well, it is just the same with the heat contained in steam. The term *latent* applied to steam, like that of *negative* to the pole of an electric battery, is not exactly correct, but perhaps no other could be more appropriately used.

The accounts which have been published respectimg the steam and ether ship of Du Trembley, must be received with caution. They appear to us to be as reliable as the accounts published in our papers respecting the *Ericsson*. In studying out the difference between hot air and steam as motive agents, before the *Ericsson* made a single stroke with her paddles, we came to the conclusion, as expressed on page 133, Vol. 8, that it was not, and never could be used as an economical substitute for steam. Du Trembley appears to have the same object in view as Ericsson—saving the heat of the exhaust. In our opinion, he has made a complex engine for carrying out an erroneous idea. We may be wrong; we may have overlooked some point; but we cannot see it.—His engines consist of a combined pair, the one having its piston driven by steam, and the other by the vapor of ether generated by the exhaust steam. The ether vapor is condensed by the application of cold water outside, consequently, that heat is lost like that of a common steam engine; and this condensation must be eight times slower than by injection. What then is gained by this engine in the saving of fuel? The vaporizing force of the ether, it may be answered. True, but at what expense? The prevention of rapid condensation of the steam. So that the saving by the ether vaporization is but small, and is balanced by the loss of time in the condensation. This is the light in which we view the question; time will determine whether we are right or wrong. If Du Trembley's combined steam and ether engines effect such a saving of fuel as has been represented, and still maintain all the advantages of simple steam engines in speed and power, then they must soon supersede steam engines, for economy in fuel is the grand desideratum of the age, especially for ocean navigation.

Muntz Metal.

G. F. Muntz, Jr., has written a letter to the London *Mining Journal*, in which he claims for the metal which bears his name, (patented 1832,) a character which has of late been much disputed. He asserts that all the old yellow metal which has been brought forward as proofs of its worthlessness for ship sheathing and tubes, was spurious, and not the genuine "Muntz metal." Muntz claims alloys of copper and zinc, which are malleable at a red heat, and the proportions of these metals, to obtain this quality, range from 50 parts of pure copper to 50 parts of pure zinc, and 63 parts of pure copper and 37 of zinc with all the intermediate proportions. He admits, however, that when this alloy contains less than 60 parts of pure copper, that it is open in the texture, and easily acted upon by salt water, which soon leaves it in a porous state, by eating out the zinc. But when a larger proportion of copper is used, he asserts, that it is finer in the texture than pure copper; and when exposed to corrosion, like the sheathing of ships in salt water, the original ductility is retained to the last, like pure copper; also that it will not corrode so fast. Here, then, we have from Mr. Muntz himself, the information which will enable any person to test whether he is right or wrong; and whether the yellow metal which has been sold for genuine Muntz, and which has so signally failed, was a spurious kind or not.

Iron Floating Batteries.

During the past year, the British government has been constructing, at a vast expense, six huge floating batteries, with their outside planking of iron plates 4 inches thick, planed and fitted close together, and bolted to wooden planks, forming sides two feet thick. Each is of 1269 tuns burden, and is propelled by an engine—high pressure—of 150 horse power, driving a screw. The armament of each is one 68 pounder and two 24 howitzers. They have been built for the purpose of assailing the Russian forts with impunity, the thick wrought-iron plates being supposed to be perfectly cannon-ball proof. It is our opinion that none of these gun boats can withstand volley after volley from huge battery guns; time will soon determine this.

By the late news from Europe, we learn that one of these gun boats, just ready to be launched, was burned down in Scott Russell's ship yard, at Millwall, London. It is true the iron plates were not consumed, but all the inside woodwork was, and the iron plates became red-hot, and were thus rendered completely useless. Those which have been launched make only three knots per hour, so they may well be called "floating war lobsters."

Coal and Climates.

The great uniformity in the character of organic life over so vast an extent of the globe, during the palæzoic epoch, indicating as it does, climatic conditions of a very different character from those which now prevail, is one of the most interesting of geological science. The very small developement of the older fossiliferous rocks in the equatorial zone, is another important fact, which seems to us to indicate that the conditions for the growth of organic life in that part of the earth were unfavorable during the earlier periods of animal and vegetable existence. If the internal heat of the earth be adopted, as is done by most geologists, as the principal cause of the more uniform and elevated temperature of the globe during the earlier geological periods, is it not a legitimate inference, to conclude that the same causes which rendered the now frozen arctic zone sufficiently warm to support a prolific growth of plants and animals, must have so increased the temperature of the equatorial regions that life could not exist there except under peculiar and exceptionable circumstances. Thus the colder portions of the earth are by far the best provided with coal, and within the limits of the torrid zone there seems to be a total want of the proper coal measures.—[Silliman's Journal, May, 1855, page 382.

[If the internal heat theory—upon which the above hypothesis is based—be correct, it cannot account for the small developement of fossiliferous rocks in the equatorial zone, for these have now passed through the cooling process of those regions distinguishable for the older fossiliferous rocks. If the internal heat theory were the cause of climatic changes set forth, the same causes should have produced like effects in the gradual cooling of the earth in the equatorial as in the temporate zones. This is the legitimate conclusions we would draw from such premises. Geologists, however, are but partially acquainted with the geological characteristics of those countries lying more immediately under the equator.

The remark respecting the colder portions of the earth being better provided with coal than the countries under the torrid zone, is not exactly candid, to prove a scientific hypothesis. The fact is, the coal measures are distributed most abundantly in the temperate regions, but not according to the temperature of climates, hot or cold. New York and the extensive regions of Canada, contain but little, if any, of the coal measures, while warmer regions of the United States contain the largest coal fields of the world. In Europe, Great Britain contains the greatest amount of coal, and its climate is exceedingly mild; whereas, Denmark, Sweden, Norway, and Russia, have exceedingly cold climates, and contain but litttle or no coal. If it were the internal heat of the globe that prevented the true coal formation in the tropics, it is very singular that it should have done the same thing in the arctic regions; for Taylor says, "all the principal carboniferous formations on our planet repose *between* the arctic circle and the tropic of Cancer." There is just as much coal in the very hot as in the very cold regions of our globe, therefore the internal heat theory cannot account for such opposites.

Railroads for the South.

Owing to the great droughts which have taken place this spring in many very large districts in some of the Southern States, especially in Arkansas and Texas, it appears to us that the necessity and utility of railroads must have become very manifest to the people living in those districts. The Arkansas and a number of other rivers, have been represented as nearly dried up, and large quantities of cotton have been prevented from being sent to market in the usual way by boats; and groceries and other necessaries of life being received in return. The inhabitants of many places have thus, in consequence of these droughts, been reduced to a state of great destitution. Thus the Little Rock *Gazette* (Ark.) of the 27th of April, says, "There is not in this place a barrel of flour, a bushel of meal, or a pound of coffee or sugar, for sale. There is the greatest scarcity of every article of family groceries." The remedy for low water in rivers generally navigable, is railroads, and the people in all the Southern States should go heart and hand, with zeal and energy, into their construction. They never freeze, like our northern lakes and canals; and the iron horse cares not for high or low water. No countries are better adapted for the construction of railroads than our Southern States, and none so much require them. They possess large and fertile valleys, but the rivers which water them are directly dependent upon "the soft falling rain." They have no eternal snow-capped mountains like the Andes, to afford constant supplies of water, hence they are fluctuating, and unfitted for the purposes of constant commerce. But they may have the great modern right arm of internal commerce—the railroad—to afford them every facility, in every season, for the exchange of commerce, and they should avail themselves of its advantages.

Sanatory Substances.

As the warm weather is now at hand, it will no doubt be very useful information to many persons to be told what are the best substances for removing offensive odors from sinks, &c. Copperas, or sulphate of iron, is a very excellent substance for slushing drains and sinks. By dissolving half a pound of it in a pail of hot water, and throwing it into a sink once per week, it will keep down all offensive odor; and from the situations of many houses in all our cities, it would greatly tend to health and pleasure for the inhabitants of each to do this.—The chloride of lime, or the chloride of zinc, will answer just as well, but these are expensive substances in comparison with copperas (sulphate of iron.) Lime is also very useful, and is no doubt a cheap deodorizer, but it is not a very good one; copperas therefore is preferable to all these substances.—But there is another substance which is far superior to either copperas, the chloride of lime, or zinc, as a deodorizer, both as it respects its qualities and economy; we mean charcoal powder—made of ground wood charcoal. Charcoal powder possesses the quality of absorbing ammoniacal, sulphuretted hydrogen, and carbonic acid gases in superior degree to any other substance.—Placed in the vicinity, or spread among decaying animal or vegetable matters, it absorbs all the offensive and hurtful gases, and keeps the air sweet and wholesome.

We really hope that charcoal powder will soon come into extensive use as a deodorizer and disinfectant. It appears to us that it can be ground in mills in the timber regions where wood is cheap, transported to our cities, and sold at a very moderate price We are convinced that a plentiful use of fresh ground wood charcoal for sinks, damp floors, and the drains of cellars, would greatly tend to prevent disease in many places, by the absorption of miasma.

On the 21st ult., a case for infringing the patent of Allen, for making artificial teeth, was decided in Cincinnati, against the plaintiff.

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(For the Scientific American.)

Gravitation.- Motion of the Earth and Moon.

On page 235, G. W. Eveleth makes some statements concerning the motions of the earth and moon, and asks "gravitationists" to attempt a "falsification" of his deduction. He proves by calculation (whether correctly or not, does not alter the question) that the attraction of the earth on the moon is not quite half as great as that of the sun on the same luminary, and hence concludes that the moon, on leaving its superior conjunction, would, if governed only by gravity, leave the earth and perform an orbit of its own, outside of that of the earth in ten days less than a year. There are two manifest errors in this conclusion; the moon would not leave the earth, and if it should do so, it would not perform an orbit outside of that of the earth's in less time. He appears entirely to set aside those immutable truths, termed Kepler's laws, viz.:

1. The planets describe ellipses having the center of the sun at one of their foci.

2. The area of the elliptical sectors described by the radius vector, drawn from the planet to the center of the sun, are constantly proportional to the times of description.

3. The squares of the times of revolution of the several planets are proportional to the cubes of their mean distances from the sun.

Astronomers, by observations on the heavenly bodies have proven these laws to be true, and mathematicians have demonstrated their correctness. And moreover, experimenters have verified the conclusions of both astronomers and mathematicians. The balls of the governor, the rim of the fly-wheel, and the planets in their orbits, obey these laws. The tendency they have to move in a right line (termed centrifugal force) is fouud to be in the inverse ratio of the squares of the times of revolution, and directly as their distances from the center of motion. And when the cubes of their distances from the center equals the squares of the times of revolution, the inverse ratio of the squares of their distance from the center will equal the inverse ratio of the squares of the times of revolution by the distance from the center. Thus the law is proven to be true. Let it be applied to the moon.

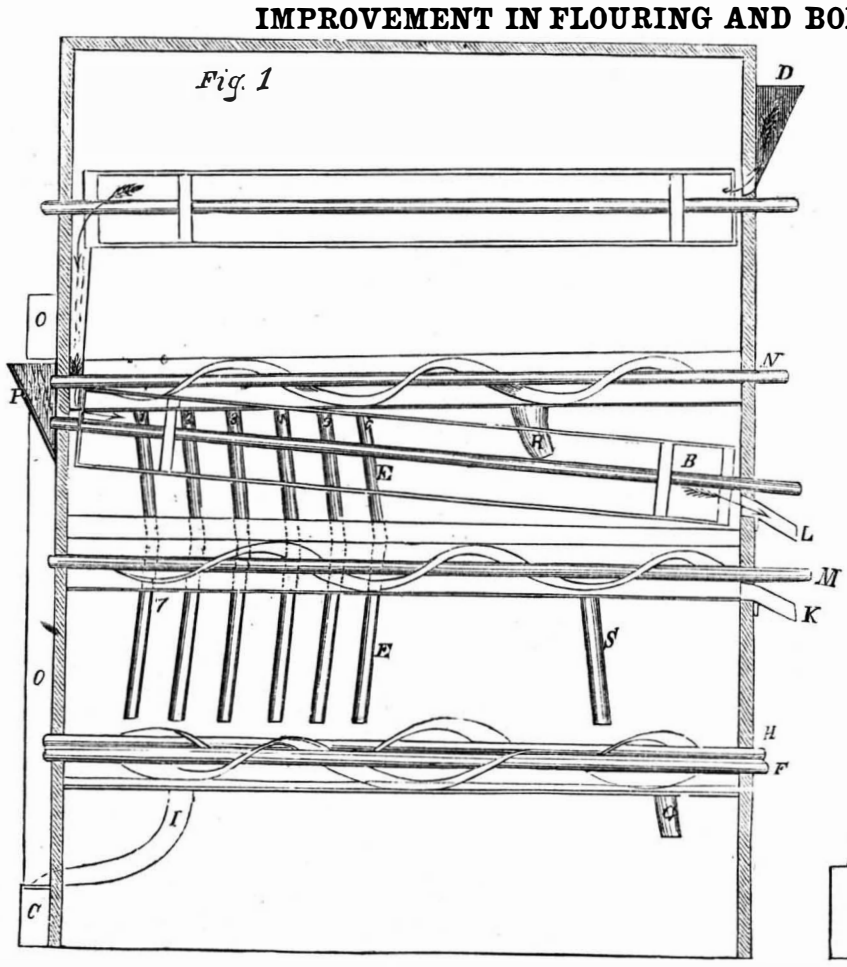
The horizontal parallax of the moon is found to be 57′ of a degree; from which, by trigonometry, we find the radius of its orbit to be 60·314 semi-diameters of the earth. The distance a body would fall from rest in one second at the surface of the earth, supposed at rest, is 16·1118 feet, therefore $\frac{(60)^2 \times 16{\cdot}1118}{(60{\cdot}314)^2} = 15{\cdot}9443$ feet, the distance a body would fall at the distance of the moon, on the hypothesis that the force of gravity decreases as the squares of the distance increases. If the moon obey the above laws, it will fall from a tangent 15·9443 feet per minute. The moon performs a sideral revolution in the meantime of 39,343 seconds, and consequently passes through 32·94″ of a degree each minute. Now the versed sine of 32·94′ of the moon's orbit, will be the distance the moon falls from a tangent each minute of time, when moving in her orbit. From the properties of the circle,—taking the semi-diameter of the earth at 20,886,500 feet,—this is found to be 16,049 feet. This differs slightly from the result obtained on the hypothesis that the intensity of gravity diminishes in the inverse ratio of the squares of the distance from the center of the earth, which might have been anticipated, since mean values alone were taken. Thus it is proven that the moon is governed by those laws.

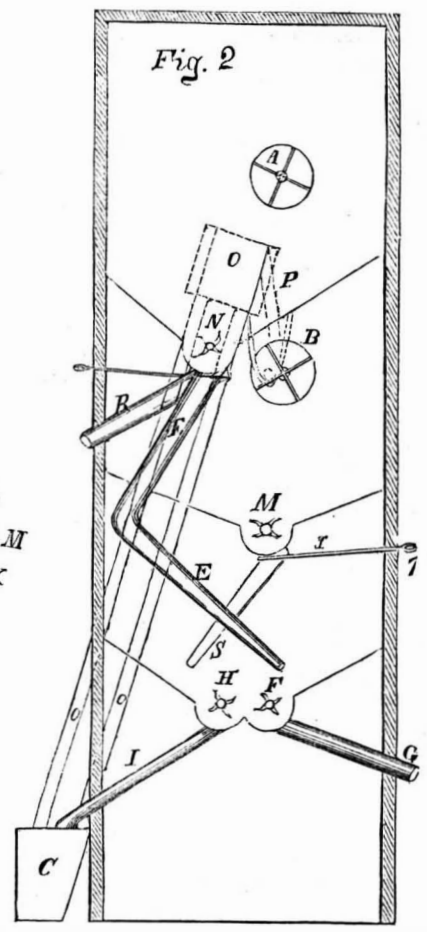
If Mr. E. will ascertain the distance the earth falls in a minute from a tangent, and that of the moon in the same time from the attraction of the sun alone (supposing them to start from their situation at full moon, and each to move with its true velocity,) he will find their relative situation at the end of the time, to be precisely the same as if the earth had remained at rest and the moon had moved off at a tangent with a velocity equal that with which she moves round the earth. And if he will add to the attraction of the sun on the moon, that of the earth, he will find the moon situated in her orbit, moving round the earth, and not deserting it, as he supposes, and moving on alone. If Mr. E. will make these calculations, and study the motions of the heavenly bodies, in connection with force and motion generally, he will no longer be a skeptic. For it is a fact worthy of remark, and it goes far to prove the truth of the position, that no person who was familiarly acquainted with the motions of the heavenly bodies, and who was well versed in the higher branches of mathematics, has ever doubted the existence of a universal reciprocal force whose intensity diminishes as the squares of the distances increases.

The want of a proper knowledge of the motions of the heavenly bodies appears to have led him into another error. He appears to suppose that the moon "curves downward and backward behind the earth," when in fact the track of the moon around the sun is at all points concave to the sun,—slightly more so at the full than change, however. And, so far from moving backward, its progressive motion around the sun is never less than 29-30ths of that of the earth.

Jackson, Tenn. J. B. Conger.

IMPROVEMENT IN FLOURING AND BOLTING.





The accompanying figures represent an improvement in machinery for flouring and bolting, for which a patent was granted to John Stouffer, Peter Brough, and John W. Barr, of Chambersburgh, Pa., on the 11th of July, last year.

Fig. 1 is an elevation of the machinery, and fig. 2 is a transverse section. Similar letters refer to like parts.

The nature of the improvement consists in entirely separating the bran and the flouring particles previous to subjecting the stuffs to regrinding, by passing them through the superfine bolt, A, and then through a second one, B, under it.

On the reception of the ground grain raised by elevators to the spout, D, it is received in the first bolt, A; all flour of superfine quality is deposited under the head of this bolt, and conveyed to the packing chest by spout R, while the fine flour intermixed with specks is deposited in the screw box, N, over the draw gates, 1, 2, 3, 4, 5, 6, and conveyed by bent tubes, E E, under and across the second bolt into the screw trough, F, from whence it is conveyed and mixed with the stuffs from the first burrs by the spout, G, to be raised and rebolted in the first bolt, at the head of which it deposits a still further quantity of superfine flour. The specky flour having been thus rebolted, all that passes through the coarser mesh of the lower bolt, B, (it being covered with superfine cloth only half way,) is conveyed by the open spout, S, and screw trough, H, to the auxiliary mill, *c*, by spout, I. Under the head of the lower bolt, B, in the screw trough, M, a draw gate, 7, is placed, which may be opened and deliver into the screw trough, F, below, when the flour is is quality to justify its rebolting. The brown stuff received at the tail of the bolt is delivered by screw, M, into the lower spout, K, on the end, while the bran passes out by the spout, L, placed above it, communicating directly with the lower end or tail of the second bolt, B. The stuffs reground by the auxiliary mill are taken by elevators, *o o* (exhibited in dotted lines in fig. 2) to the lower bolt only, being delivered into the spout, P. Any superfine flour from them is deposited on the gate, 7, at the head of this bolt, B, and falling through, is mixed with that passing through the several gates under the bolt, A. The advantages of this improvement are set forth in the specification, as follows: "In the bolting process and apparatus an insignificant quantity of brown stuff is made (which is only bran ground fine,) and avoiding entirely the production of middlings, at the same time increasing the production of superfine flour of uniform quality or brand; with good wheat, a barrel being produced from four bushels to four bushels and six pounds.

The practical use of the improvement may be thus explained: When the quality of wheat justifies it, and the run of the first bolt shows no specky matter mixed with the flour, all the gates, 1, 2, 3, 4, 5, 6, may be closed, and of course the screw will deliver by spout, R, into the packing chest or barrel, but should the specks show under this bolt, draw or open the gates, 6, 5, 4, &c., in accordance with the appearance. Indifferent qualities of wheat may require nearly all the gates to be opened, but there is this advantage gained, there is not that necessity for a low grind (by which quality is sacrificed for appearance,) to accomplish the end proposed, viz: to make the most uniform quality, by which the character of the brand is sustained without loss of quality in product of superfine flour from the bushel of grain, at the same time avoiding loss of power, and the production of middlings and offal."

It is also stated in the specification, that all efforts heretofore made to produce a barrel of superfine flour from less than 4 bushels and 25lbs. of wheat, have failed to procure a regular run of quality, on account of the bran husk being reground with the farina, and imparting a red cast to the flour. The regrinding of all the offal, on account of gluten, has also a tendency to clog the bolts. The great quantity of bran also, in proportion to the flour, which is passed through the auxiliary mill, consumes a great deal of power.

More information may be obtained by letter addressed to Messrs. Stouffer, Brough, and Barr, at Chambersburgh.

Queer Freaks of Lightning.

On Thursday last, a house in Bedford, in this county, was struck by lightning. The fluid passed down a lightning rod nearly to the ground, thence through the side of the building along the joists, up the posts of a bedstead, through a feather pillow, over the bodies of a man and his wife, and found its way to the earth. It made a hole through the pillow, singeing the feathers in its course, and badly burned the unfortunate man and woman, who thought themselves safe on a feather bed. This is one of the most remarkable instances of the freaks of lightning that ever came to our knowledge. It has been thought, and generally believed, that feathers were a perfect non-conductor of electricity. The facts in the present case seem to disprove the old theory.—[Detroit Advertiser.

[The above is certainly a singular course for the lightning to have pursued, but it is a mistaken idea to suppose that feathers are *perfect non-conductors.* All substances conduct electricity, but some are very feeble conductors, and among the number are feathers. The lightning rod must have been badly put up, or the electric fluid would not have left it and passed through the side of the house; or perhaps a superior mass of metal may have been in close proximity to it in the side of the house.

Guano and Potatoes.

On page 22 of the State Agricultural Report of Massachusetts, we see it stated that 189½ bushels of potatoes were raised on one acre of ground, manured with 400 lbs. of guano applied to the hills. The Committee consisting of M. P. Wilder and John A. Nash, who were appointed to test its qualities with other manures, speak favorably of its merits and award it a high place among fertilizers, especially for clayey and heavy mold soils, where evaporation is less active than in sandy soils.

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TO CORRESPONDENTS.

W. B. G., of N. Y.—Your duck's-foot propeller will never answer so good a purpose as the common screw.

C. E. W.—We think your rock drill is patentable, but fear it would not work well. The pistons could be worked to better advantage with springs.

W. R. C.—Curved cutters for tenoning, similar to yours, are used in this city. Your improvement is not patentable.

J. A. R., of Mass.—We think we could have your caveat fee applied towards your new machine. No money is ever refunded on caveats. Your carpet stretcher we regard as new and patentable.

Warren Gale, patentee of a Straw Cutter, will very much oblige us by communicating his whereabouts to this office.

D. B. C., of N. Y.—Paddle wheel buckets, placed at an angle as you propose, have been applied to paddle wheels many years ago. They do not exert the same propelling force on entering the water as they would if straight or radial.

D. R., of Tenn.—Banz & Andrews of Frederick City, Md., make good corn and cob crushers. $2 received.

H. C. C., of Iowa—Address Appleton & Co., N. Y., for the books you name. $1 received.

H. B. F., of N. Y.—Your churn is very old and not patentable.

N. C. P., of N. H.—Your board cutter is not new; round disk knives have long been known.

A. H., of Va.—You will find a full description of the method of preserving meats and vegetables on page 325, Vol. 7, Sci. Am.

J. J. Y., of Ky.—There is no such filter patented as the one to which you refer. You can make one yourself by allowing the rain to fall upon cotton cloth, then through charcoal and clean sand into the cistern; make it large and wash the cloth frequently; it only requires a wooden box for the purpose.

G. W. S., of N. S.—Yours will be published next week.

C. D. C., of Va.—Your invention is identical in principle with the water wheel which drives a force pump, and thus raises water enough to keep the wheel in motion, in other words, it is a perpetual motion. The only difference is that you employ three pumps and one syphon more than is necessary. You ask us if your theory is correct, and state that if it is you can easily draft the details. The correctness of your theory may be very easily tested: place yourself in a standing position before a picket fence; let your hands gather up the seat of your pantaloons: and now exert all the strength of your arms in an upward direction. If, by this effort, you find yourself safely landed on the other side of the fence, you will have practically demonstrated the truth of your theory. If, however, your clothing gives way without lifting you from the ground, you may depend upon it that your plan is false in principle and will not operate.

J. B., of ——.—Spirally grooved bullets, like those you describe, are not new. They were proposed several years since in England, and the plan has several times been submitted to us.

C. W. S., of Ohio—Your excellent article on Coach Painting has been delayed until next week.

M. B., of Ky.—When you can demonstrate the question so easily, you do not require to ask our opinion. Set up a scantling on a pivot and balance it; then place 50 lbs. at one end and 100 lbs. at the other, and advance the latter towards the fulcrum until the less balances the greater, and you will have a solution to your question.

G. E., of N. Y.—Your plan of sounding the Niagara river appears feasible.

E. W., of Ind.—The dyers here find no difficulty in making sulphate of indigo with common vitriol, and Bengal indigo, if the vitriol is new and fresh, but not when it is old and has been exposed to the air. We cannot understand how you have failed to make it, and that it would not mix with hot or cold water. American vitriol makes as good chemic as any other.

J. E H., of Ohio—Yours will appear next week.

S. A. M., of N. Y.—Your inquiries will be answered when you give us your name and number—not before. You had better bring your model to our office yourself as you reside in the city.

A correspondent, who signs himself "An Old Inventor," desires us to send him a circular of information relative to patents. He gives no name or residence, and therefore we cannot comply with his wishes. He also asks a number of questions on other subjects. Correspondents should, in all cases, give their names and residences in full, for anonymous writers receive no attention in our columns.

R. McG., of Geo.—The subject of steam is one of continual growing importance. Great improvements will no doubt yet be made in the saving of fuel. Persevere with your experiments.

G. H., of Pa.—A combination of oil, charcoal, and shavings, for kindling, would not be patentable.

B. A., of Ind.—Petition and $1 dollar received. All right.

N. C., of Ohio—The idea of shutting the throttle instantly on the bursting of a pipe, could not be patented. Your arrangement of mechanism for accomplishing the same, if new, could be secured.

☞ Subscribers to the Scientific American who fail to receive their papers regularly, or miss some numbers entirely, will oblige the publishers by communicating the fact by letter, and specifying what numbers are wanted to render their files complete. Such numbers as we have will be cheerfully supplied without charge.

Money received at the Scientific American Office on account of Patent Office business for the week ending Saturday, May 26:—

B. H. W., of Mo., $20; R. F. C., of Ala., $25; D. N. D., of Mass., $25; I. M. W., of Mich., $25; J. & H., of N. H., $12; M. B., of N. H., $25; J. L., of Mass., $30; O. B. S., of N. Y., $15; A. F. G., & Co., of La., $30; C. W. R., of Pa., $50; L. & A., of N. Y., $30; A. H., of N. Y., $30; W. M., of Pa., $25; S. M. N., of Mass., $30; L. W. B., of N. Y., $250; A. S., of N. Y., $30; A. B. H., of Pa., $25; W. H. E., of N. Y., $100; S. M., of Pa., $10; E. D. W., of Del., $30; S. H., of Ill., $30; T. B., of Ky., $15; S. & H., of N. Y., $30; S. W. S., of N. Y., $40: J. J. T., of Pa., $30; P. & B., of O., $5; G. B., of Wis., $30; O. M., of Ill., $30; F. K., of Mass., $10; C. M. H., of Ct., $30; S. C., of Ct., $30; A. S., of N. Y., $50; H. & A., of N. Y., $25; M. C., of N. Y., $25; B. T. B., of N. Y., $25.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, May 26:—

M. B., of N. H.; I. M. W., of Mich.; O. B. S., of N. Y.; J. & H., of N. H.; D. N. D., of Mass.; R. F. C., of Ala.; J. L. G., of Ga.; W. M., of Pa.; A. B. H., of Pa.; H. & A., of N. Y.; H. S., of N. Y.; E. D. W., of Del.; C. & H. of Ill.; M. C., of N. Y.; B. T. B., of N. Y.; P. & B., of O.

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American and Foreign Patent Agency.

IMPORTANT TO INVENTORS—MESSRS. MUNN & CO., 128 Fulton street, New York, Publishers and Proprietors of the Scientific American, having for many years been extensively engaged in procuring Letters Patents for new mechanical and chemical inventions, offer their services upon the most reasonable terms. Patents promptly secured in the United States, Great Britain, France, Belgium, Holland, Austria, Russia, Spain, and in all countries where they are granted. All business entrusted to their charge is strictly confidential. Private consultations respecting the patentability of inventions are held free of charge, with inventors, at their office, from 9 A. M., until 4 P. M. Parties residing at a distance are informed that it is generally unnecessary for them to incur the expense of attending in person, as all the steps necessary to secure a patent can be arranged by letter. A rough sketch and description of the improvement should be first forwarded, which we will examine and give an opinion as to patentability, without charge. Models and fees can be sent with safety from any part of the country by express. In this respect New York is more accessible than any other city in our country. Circulars of information will be sent free of postage to any one wishing to learn the preliminary steps towards making an application.

In addition to the advantages which the long experience and great success of our firm in obtaining patsent present to inventors, they are informed that all inventions patented through our establishment, are noticed, *at the proper time*, in the Scientific American. This paper is read by not less than 100,000 persons every week, and enjoys a very wide spread and substantial influence. Parties intrusting their business in our hands can rely upon prompt and faithful attention.—Most of the patents obtained by Americans in foreign countries are secured through us; while it is well known that a very large proportion of all the patents applied for in the U. S., go through our agency.

The offices of Messrs. Munn & Co.'s American and Foreign Patent Agency are at 128 Fulton Street, New York; London, No. 32 Essex st., Strand; Paris, No. 29 Boulevard St. Martin; Brussels, No. 6 Rue D'Or.

RURAL PUBLICATIONS—The attention of all persons interested in rural pursuits is invited to the following publications:—THE COUNTRY GENTLEMAN—A Weekly Journal for the Farm, the Garden, and the Fireside—forming yearly two large and beautiful quarto volumes of 416 pages each. Price $2 a year. This is, beyond question, the best agricultural journal published in this country. Specimens sent to all applicants. Subscriptions may begin at any time. A new volume commences July 1st. THE CULTIVATOR, a monthly journal for the farmer and the horticulturist, beautifully illustrated, and forming an annual volume of nearly 400 pages, at 50 cents a-year. The "Illustrated Annual Register of Rural Affairs, for 1855," embellished with more than 100 engravings; 1 vol. 12mo. 144 pp., price 25 cents in paper covers, bound, 50 cents; sent prepaid by mail. "Relations of Chemistry to Agriculture, and the Agricultural Experiments of J. B. Lawes," a new work by Prof. Liebig just published, price 25 cts.; sent prepaid by mail. Specimens and prospectuses sent to those disposed to act as agents. Address the publisher, LUTHER TUCKER, Albany, N. Y. 38 2*

BALL AND BALLARD, (successors to Ball and Rice) Worcester, Mass., continue to manufacture the well known Daniels Planers; Gray and Wood, Patent Planers, being a combination of parts of the Daniels and Woodworth Planing Machines. This machine does the work fast and very nice; also Wright's Scroll Saws. Tenoning and Sash Molding Machines, warranted to be of a superior quality, and have recently been much improved; we also manufacture Mortising Machines, and a variety of other articles wanted to accompany the above named machines. 38 4*

ENGINEER'S OIL AND LUBRICATING COMpounds—Cumberlands' Metallic Oil, and Yockney's Superior Lubricating Compounds. These oils are free from unpleasant odor, and will not gum on machinery. Also Yockney's Economic Lamp Oil. Parties wishing to procure the genuine qualities are recommended to send their orders direct to the manufacturer. Orders directed to him, at the old stand, 67 Exchange Place, will have his immediate attention.
AUGUSTUS YOCKNEY.
38 2* 67 Exchange Place, N. Y.

PARTNER WANTED—The undersigned having secured a U. S. Patent for an invention which promises to be very profitable, is desirous of forming a partnership with a person having from $500 to $1000 capital. The invention consists of a new kind of spring gun, to be attached to safes, door locks, etc., called an "Alarm Attachment." It may be easily arranged however, so as to give alarm or to wound. For further particulars apply to JOHN SCHNEIDER,
1* No. 11 Frankfort st., New York City.

PARTNER WANTED IMMEDIATELY,—Who will invest $500 or $1000 in Letters Patent, and aid in constructing and operating the machines,—from which large profits will arise. For particulars address JOHN W. BROWER, Cincinnati, Ohio. 1*

FOR SALE—A valuable Lumbering Establishment in full operation; a large new mill, a good stock of logs on hand, and a quantity of sawed lumber in the yard. Connected with the above is a large and desirable tract of timber land in Pennsylvania, near the Delaware River, and convenient to the N. Y. and Erie R.R. For particulars inquire of E. P. WHITMOR, office of the Plow, Loom and Anvil, No. 3 Spruce st, N. Y. 38 3*

LUBRICATING OILS—We are prepared to furnish Cumberland's Patent Metallic Oil, and other superior lubricating materials; Railroad and Steamship Companies, and all parties using machinery, will find a decided advantage in using our oils, which are more economical than others in market. The Metallic Oil is favorably known for durability, saving power and for preventing the heating and wearing of machinery. The price of our No. 1 oil is only $1.15 per gallon. Orders will receive prompt attention. WEED & CO., office 134 Pearl st., N. Y. 38 4*

TREMPER'S PATENT REGULATOR and Fuel Economiser for Stationary or Marine Engines; will regulate better and with less fuel than any other known mode. Also will stop the engine, in case of accident.—The whole combined in one and warranted for governors or valves. Address JOHN TREMPER.
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JACK SCREWS AND HYDRAULIC JACKS.—For sale at manufacturers' prices, by FOSTER & LEACH, 26 Broadway, N. Y. 37 13*

MACHINERY—S. C. HILLS, No. 12 Platt st., N. Y. dealer in Steam Engines, Boilers, Planers, Lathes Chucks, Drills, Pumps; Mortising, Tenoning, and Sash Machines Woodworth's and Daniel's Planers; Dick's Punches, Presses, and Shears: Cob and Corn Mills; Harrison's Grist Mills; Johnson's Shingle Mills; Belting, Oil, &c. 27 e3w

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THE ARTISAN JOURNAL—A Monthly Record of the Process of Civil and Mechanical Engineering, Steam Navigation, Shipbuilding, and the Industrial Arts, Chemistry, &c. Published in London, and for sale in numbers and volumes by CHAS. H. HASWELL, Consulting and Superintending Engineer, Bowling Green, New York. Drawings and specifications of Steam Machinery, in all its branches, furnished upon application. 14 lamtf

UNITED STATES PATENT OFFICE,
Washington, May 19, 1855.

ON THE PETITION of Emily C. Pullman, administratrix of the estate of Lewis Pullman, deceased, late of Albion, N. Y., praying for the extension of a patent granted to the said Lewis Pullman, on the 21st day of August, 1841, for an improvement in "machines for removing buildings," for seven years from the expiration of said patent, which takes place on the 21st day of August, 1855:

It is ordered that the said petition be heard at the Patent Office on Monday the 6th day of August next, at 12 o'clock, M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

The testimony in the case will be closed on the 26th day of July, 1855; depositions and other papers relied upon as testimony must be filed in the office on or before the morning of that day; the arguments, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.; Pennsylvanian, Philadelphia, Penn.; Scientific American, New York; Daily Baltimore Republican, and Post, Boston, Mass., once a week for three successive weeks previous to the 6th day of August next the day of hearing.
CHARLES MASON,
Commissioner of Patents.

P. S. Editors of the above papers will please copy and send their bills to the Patent Office, with a paper containing this notice. 38 3

NEW GAS REGULATOR—The subscriber offers for sale in one lot, or by single States, the entire patent for his Gas Regulator. The machine is simple in construction, correct in principle and accurate to a nicety in its operation. The invention is considered superior to everything ever devised for the purpose, being so constructed that it cannot become clogged by the accumulation of tar or other liquid matter. A chance is here offered for a permanent and profitable cash business, as the rights will be sold on moderate terms.
37 2* J. W. HOARD, Providence, R. I.

SEVEN FINE VOLUMES of the London and Glasgow Practical Mechanic's Journal, for sale; being the work from the beginning up to present time; containing about 3000 engravings, illustrative of all the most prominent British and American patented mechanical inventions from March, 1848, to March, 1855, including a list of English patents, together with a vast amount of scientific and other interesting information. Also containing a number of large and splendid copper plate drawings, which, with the other illustrations, render the work complete as a self-instruction book of mechanical drawings. Price $20 The continuing monthly numbers can at all times be had in New York. Address and remit to MUNN & CO., Scientific American Office.

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DESCRIPTIVE OR ILLUSTRATED CIRCUlars of Machinery, Implements, Plants, Seeds, Stock etc., if forwarded, (post-paid) addressed to the "Secretary of the Adams County Agricultural Society Quincy, Ill." will be filed for inspection and reference of the Members of the Society. 37 2*

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IRON PLANERS—Of various sizes and superior workmanship on hand and finishing, for sale low for cash. We confine ourselves solely to building Planers, and can warrant every machine, Lathes, Drills, Gear Cutters, Chucks, &c., of the best quality furnished at very low prices. Address THOMPSON, SKINNER & CO., New Haven, Conn. 32tf

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A CLIPPER AMONG THE MONTHLIES.—The NAUTICAL MAGAZINE, devoted exclusively to Maritime interests, embracing shipbuilding, commerce, navigation, and marine engineering, enlarged 96 pages. This work contains draughts of some of the finest vessels of the age, with other engravings, and is one of the most valuable publications in the country. Terms, single copies $5 per annum, or $2,50 per volume. Club Rates—Five copies for $20; thirteen copies for $50. Sample copies sent when requested. Address GRIFFITHS & BATES, Editors and Proprietors, 115 and 117 Nassau st., New York. 31

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Rights to use N. G. Norcrois's patented machine can be purchased on application to N. G. NORCROSS,
208 Broadway, New York.
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Science and Art.

The Art of Dyeing.—No. 23.

DRABS ON WOOLEN GOODS—The variety of drab shades on woolen goods are exceedingly numerous. A dark reddish drab is dyed on 10 lbs. of goods by first preparing them by boiling for one hour in a mordant of 3¼ ounces of the bichromate of potash and a little quantity of crude or red tartar, and of alum. They are then taken out of the kettle, washed in one water, and dyed in a clean kettle with one pound of fustic and one pound of crop madder. This shade is cleared with a weak sour of sulphuric acid, which is added to the liquor like *raising*, a short time before the goods are finished. Various shades of this dark brownish drab, may be dyed by altering the proportions of the mordant and dye stuffs.

VERY DARK DRAB—10 lbs. of goods. Boil the goods in a clean kettle for one hour, with 2 lbs. of fustic, 2 lbs. of crop madder, and one pound of camwood. They are then lifted and saddened with one ounce of copperas in the same liquor. The copperas is boiled for ten minutes, and the froth skimmed off the top of the liquor before the goods are re-entered. Great care must be exercised in saddening drab colors, because they are so liable to become uneven and spotted; a little sumac, in some way or other not clearly understood, has the effect of making saddening work level.

FAWN DRAB.—10 lbs. of goods. Take five ounces of camwood, eight ounces of fustic, and one of logwood. Boil for one hour in a clean kettle, then sadden with one ounce of copperas. By increasing the quantities of these stuffs, darker drabs will be produced, and by using less quantities, lighter shades will be produced; indeed, every variety of drab can be colored with these stuffs. By preparing goods with the bichromate of potash and crude tartar, no saddening by copperas is required; this is the best way to dye such drabs. One ounce of logwood and one ounce of camwood, and half an ounce of fustic, will dye a light silver drab on ten pounds of wool, it is saddened with one-fourth of an ounce of copperas.

CUDBEAR DRAB—A light drab may be dyed on ten pounds of goods with one ounce of cudbear and a very small quantity of the extract of indigo, or with chemic (sulphate of indigo.) Camwood is used to impart the red shade, fustic the yellow, and logwood or indigo the blue, to goods. Madder (which produces the fastest colors,) when used in small quantities, has the quality of imparting a yellow reddish hue to goods. Copperas (sulphate of iron) possesses the quality of darkening fustic, madder, camwood, and logwood. A knowledge of these qualities of chemicals enables the dyer to give his goods such stuffs, and in such proportions, as will match his colors to any pattern.

GRAY DRABS—Some dyers make very good gray drabs, or stone colors, with logwood, fustic, aud copperas all boiled together—at one dip. One ounce of logwood, one of fustic, and one-fourth of an ounce of copperas, will dye a light shade. To ensure a level color, it is best to add half an ounce of sumac. By using more logwood, and a little blue vitriol (sulphate of copper,) a very good slate color will be produced.

By bottoming woolen goods with madder, they can be blued to a very fine drab shade with chemic (sulphate of indigo.)

FAST DRAB—This color is dyed on cloth intended to stand washing and fulling, with madder and sumac, saddened with copperas to shade. The goods (10 lbs.) are boiled for one hour in about one ounce of crop madder and one ounce of sumac, then lifted, and saddened with one-fourth of an ounce of copperas. Great care must be taken to avoid black spots in dyeing this color.

Camwood drabs, which are dyed with fustic, camwood, sumac, a little sulphuric acid, and saddened with copperas, are easier managed than madder drabs; they are not so liable to spot.

Any shade of drab may be dyed on woolen goods with cudbear, fustic, and the sulphate of indigo.

STRAW HATS—Any shade of drab may be dyed on straw hats by the same stuffs, only, they must not be boiled like woolen goods. By dyeing them (or woolen goods) a very light purple, for a basis, very good stone drabs can be colored, by working to shade afterwards in a clean liquor, with the sulphate of indigo and fustic.

Any shade of drab may be dyed on silk in the same manner. The finest silver drabs can be dyed on silk with archil, topped with *china* (neutralized indigo.) The goods are bottomed with a very light dip of archil, then the china is given in a clean vessel by itself. The extract of indigo, which is now very generally used, has superseded *china blue* for delicate shades on silk; a careful dyer, however, who makes his own sulphate of indigo, can dye these shades without neutralizing his chemic. But in jobbing dyeing, so many fabrics are now composed partly of cotton and silk, the chemic used for dyeing them drab, should be neutralized with the acetate of lead, which is much better than simple chalk—the substance commonly used.

Perry's Breech-Loading Fire Arms.

The annexed engravings represent an improvement in fire arms, for which a patent was granted to A. D. Perry, on the 3rd of June, last year.

Fig. 1 is a perspective view of the improvement with the breech lever down, showing the breech and nipple, and the open butt of the gun barrel. Fig. 2 is a segment piece drawn back from the breech in position for loading; and fig. 3 represents the breech closed by the segment piece. Similar letters refer to like parts.

The nature of the invention consists in the peculiar and effectual mode of closing the breech of the gun after the cartridge has been inserted, providing most effectually against the escape of the gas and the recoil of the breech piece under the effect of the discharge, by a segmental revolving breech piece, like the one shown, in which there is a cylindrical or conical projection on its face to enter the bore of the barrel, when the plane surface of the breech piece is brought up in contact with the rear of the bore of the barrel, and having a circular surface fitting in a corresponding recess at its rear, as combined; also a peculiar combination, and an arrangement of parts for the purpose of holding this peculiar breech piece firmly in place during the discharge.

The segment piece, *a*, turns upon the center, *b*, within a slot, *s*, in the gun stock, and has upon its face a projection, P, to enter and fit the open end of the barrel as seen in

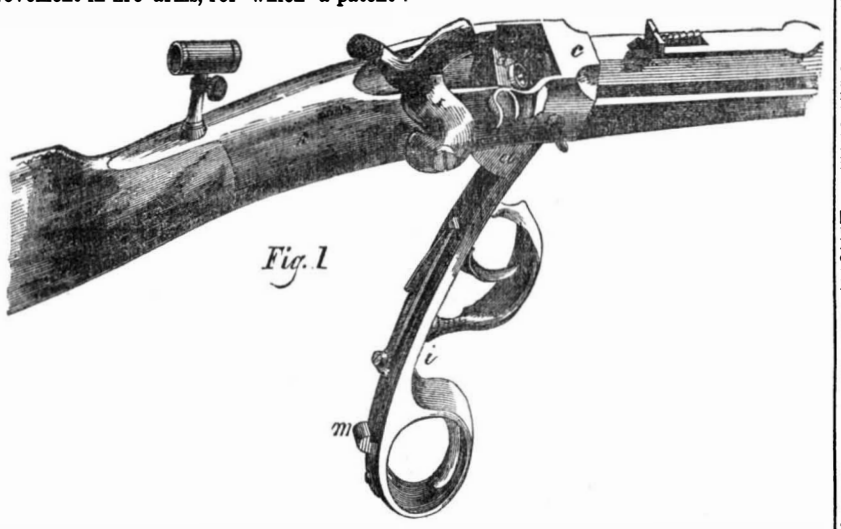

Fig. 1

fig. 3. In the center of this projection is a raised nipple, *d*, and around this nipple a slight depression, *d'*. The fire from the cap enters the charge through the center of this nipple, and the purpose of this nipple is to concentrate the fire upon the charge, in consequence of the nipple's being forced slightly within the surface of the end of the cartridge.

The segment piece is worked on and off the breech of the barrel by means of the cam levers, *g*, *h*, and the hand lever, *i*. The hand lever is provided with a spring latch, *m*, to secure it in place by a catch. The lever, *g*, is jointed to the segment piece within a slot, *g'*, in the same, and the lever, *h*, is jointed to lever *g* within a slot, *g''*, in this lever, and the lever *h* is also jointed to lever *i*, within a slot, *i'*, in this lever.

There is a notch and projection at *h'* on lever *h*, which bears upon the end of the lever *g*, when the segment commences to move towards closing the barrel, but as the segment advances, it will be seen from the figures 2 and 3, that lever *g* changes its relation to *h*, the end of *h* bearing upon the

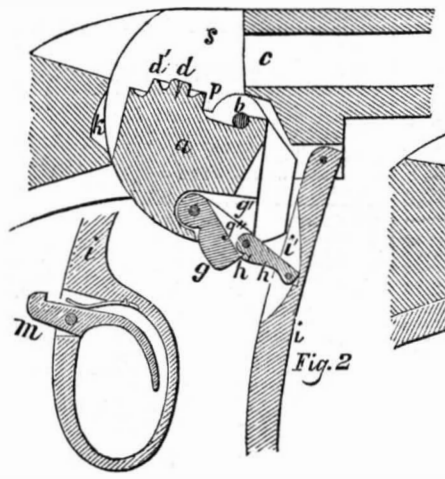

Fig. 2

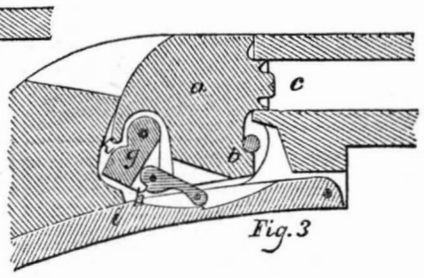

Fig. 3

side of *g*, and pushing its lower end into cavity, *k*, in the gun stock. The extremity of *g* bearing upon the side of cavity *k*, is so made and moved as to wedge itself as it advances, and thus forces the segment piece firmly against the breech of the barrel, and holds it in place. The parts around and below the projection, *p*, are cut away so as to leave room for grit or dirt to fall out of the way of the fitting parts. The operation of the segment piece is simple, and from the small number of parts, and their relation, arrangement, and operation, the work keeps clean and in order.

On page 4, this Volume SCIENTIFIC AMERICAN, we also published an illustrated description of a self-capping rifle belonging to the same Company.

More information may be obtained by letter addressed to J. M. Quimby, President of the "Perry Arms Co.," Newark, N. J.

Rice Culture on Upland.

The cultivation of rice on upland is so simple, that it is a matter to be regretted that more is not raised by planters. Those who clear rich lands every year, can feed horses and mules cheaper with it than with corn, as a per acre feed. Mules have been worked, when fed solely on rice, say two sheaves twice a day. The mode of culture is very simple, as follows: Take fresh land, new ground, break it up thoroughly, lay off rows two to three feet distant, owing to quality of land; with a hill-tongue plow, scattering the seed as regularly as possible the width of drill, cover with an iron tooth harrow. When the rice is up some two inches, shave all off, grass and all; in a few days the rice will be up high enough to mold with a hill-tongue plow, then clean middles with plow, and run it occasionally, so as to keep clean.—[American Cotton Planter.

A new "Cornish engine" has been pu up in the Schuylkill Water Works, Philadelphia. The Philadelphia *Ledger* says, that the builders of this engine guaranteed it to do the duty of lifting 50,000,000 lbs. one foot high with one hundred lbs. of coal.

LITERARY NOTICES.

WESTMINSTER REVIEW—The April number of this able foreign Quarterly, contains a fine article on the Memoirs of the Court of Austria: another on the Administrative Example of the United States, is written with great power and commended to England. This Review is republican in its tone. The other five articles of the Review are equal to its general character. The Criticisms of Cotemporary Literature in this Review are exceedingly able and worth the whole price of the work. Leonard Scott & Co., 54 Gold st., are the publishers.

AMERICAN RAILWAY GUIDE—No person can travel satisfactorily to himself, in our country, without one of these useful little books: it contains information relative to all our railroads, such as hours of leaving every station, distance from one depot to another, &c. Dinsmore & Co., No. 9 Spruce st., publishers.

BLACK DIAMONDS—This is the title of a collection of comical negro lectures by Professor Julius Cæsar Hannibal, a well-known contributor to the New York *Picayune*. The real name of the author, we believe, is Levison. He seems to be gifted with the spirit of true humor. The book flashes with wit, laughable and ludicrous, from title page to finish. It is a real side-shaker, an infallible remedy for dyspepsia and long faces. Douglas Jerrold's Caudle Lectures, in *Punch*, has been admired by thousands, but these *Black Diamonds* beat it all hollow. Ranney, publisher, 195 Broadway, New York.

THE PATENT HAT—Is the name of a general essay upon the evils of mental sluggishness, by Ellis Ballou. It is religious in its character; designed to rub up the bumps of clergy and laymen, and stimulate them to greater ardor in the discharge of their duties. Published by Carlton and Phillips, Methodist Book Concern, 200 Mulberry street, N. Y.

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